



BULLETIN OF
The New York Public Library
Astor, Lenox and Tilden Foundations

VOLUME 33

APRIL, 1929

NUMBER 4

THE HELLMAN COLLECTION OF IRVINGIANA

WASHINGTON IRVING was the first president of the Board of Trustees of the old Astor Library, now a part of The New York Public Library. There is therefore added satisfaction in the fact that, largely through the generosity of its friends, the Library is now able to place on permanent exhibition, in its first-floor hall, a representative collection of manuscripts, journals and letters, first editions, and a selection of portraits in oils, in marble, and in engraving, of the creator of Rip Van Winkle and Ichabod Crane.

Though several notable Irving manuscripts and letters have long been in the Library, the collection has only become important within the last three or four years. In 1925 the collection of Irvingiana assembled by the late Isaac N. Seligman was presented to the Library in his memory by Mrs. Seligman. At the same time Mrs. Seligman's nephew, Mr. George Hellman, author, editor, collector, presented certain Irving manuscripts and portraits which were placed on exhibition with the Seligman collection. Mr. Hellman has now added the remaining portion of his collection to that already given, and the Library has placed the complete Hellman Irvingiana in a permanent case near that containing the Seligman collection. This important addition has been given by Mr. Hellman in honor of his mother, Mrs. Frances Hellman.

In two smaller cases flanking the Seligman-Hellman collections, the Library has placed a selection of its other Irvingiana, while from a niche above the exhibit the marble bust of Irving, made from life by the English sculptor, Ball Hughes, looks down upon the visitor. The famous youthful portrait of Irving, painted by C. R. Leslie in 1820, part of the Lenox Library collection, is shown in one of the cases. The favorite easy chair of Washington Irving, the last chair he was destined to occupy, is also

a treasured possession of the Library and, though not on exhibition, is preserved in the Trustees' Room.

Descriptions of the Seligman collection, one from the pen of Mr. Hellman, have already appeared in the *Bulletin** and a catalogue is also available. A brief catalogue of the complete Hellman collection, including several items of the earlier gift which were previously described in the Seligman catalogue, is printed here.

A few of the more interesting items of the Hellman collection merit special mention. Chief among these are the complete manuscripts of the only plays written entirely by Washington Irving. While reading the manuscript journals of Irving, which he was then editing, Mr. Hellman discovered that these plays had been written. He immediately started a still hunt for their recovery and, after years of search, was finally rewarded by finding them in England. He was fortunately able to secure them and later to edit them for publication. These plays are: "The Wild Huntsman," a tragedy, and "Abu Hassan," a farce, each being the first English version of the story of one of the German operas of the period.

The collection also includes an elaborately extra-illustrated set of Pierre M. Irving's "Life and Letters of Washington Irving," prepared years ago by a member of the Irving family; and the even more important collection of Irving papers, engraved portraits, etc., which came largely from Washington Irving's private collection and which includes numerous letters from Irving as well as a considerable number to Irving from his family and friends. This collection has not been fully catalogued. Only such outstanding letters as are on display are separately entered in the following list.

Another valuable Irving manuscript is that of thirteen pages of his essay on "Count Van Horn," which appeared in "Wolfert's Roost." The collection also includes a page of the original manuscript of the "Knickerbocker History of New York" and odd pages of several other works. The visitor will also find exhibited Mr. Hellman's own copies of the various works on Irving which he has written or edited, together with a very complete collection of the engraved portraits of Irving.

In addition to the collection of Irving's private papers and the original letters in the extra-illustrated life of Irving, which are not shown in detail, the collection contains some fourteen manuscripts and letters, twenty printed books and thirty prints, including a drawing of Irving's home, "Sunnyside," by the famous illustrator of Irving's works, F. O. C. Darley.

The Irvingiana from other sources which is shown with the Seligman-Hellman collections, includes several noteworthy items. Most important

* The New York Public Library *Bulletin*, May, 1920; June, 1925; February, 1926 (the latter a catalogue of the collection, which has also been reprinted as a separate).

to the literary historian, is the complete series of original letters written to Washington Irving by his most intimate friend, Henry Brevoort. This collection, presented to the Library by Mr. Grenville Kane, supplements the series of original letters from Irving to Brevoort preserved in the Seligman collection.

Perhaps the most interesting of this group of manuscripts is the twelve-page autograph manuscript of "The author's apology," or preface, for the revised edition of the "Knickerbocker History of New York," written, dated and signed at Sunnyside in 1848 by Washington Irving. With this is shown a fine uncut copy in the original boards, of the first edition of the "Knickerbocker History of New York." There is also exhibited the complete six-page manuscript for the revised edition of the essay: "Communipaw," published in Irving's "Book of the Hudson," an earlier manuscript of the same essay being in the Seligman collection.

Other literary fragments, including a page of the original manuscript of the "Knickerbocker History of New York," several important Irving letters and a few first editions, notably two numbers of "The Sketch Book" in original parts, together with the oil portrait by Leslie and the bust by Hughes, make this part of the exhibition not altogether unworthy of its neighbors, the Seligman-Hellman collections.

R. W. G. VAIL.

NOTE: The Library owns several original letters and numerous first editions not in the exhibition. These will be found in Rooms 319 and 303, respectively.

CATALOGUE OF THE HELLMAN COLLECTION OF IRVINGIANA

LIST OF MANUSCRIPTS AND OTHER MATERIAL BY OR ABOUT WASHINGTON IRVING GIVEN BY MR. GEORGE S. HELLMAN

The collection catalogued here is the gift of Mr. George S. Hellman and includes certain material already listed in the catalogue of the Seligman collection of Irvingiana published in 1926, this material having been transferred to the larger Hellman collection now on exhibition in the first-floor hall of the Library.

MANUSCRIPTS

LETTERS

[Various dates]

IRVING, WASHINGTON, and others.

[Private papers of Washington Irving, including letters from Irving to his family and friends and letters addressed to Irving.] Forty-two letters

Manuscripts — Letters, continued

and forty-two portraits and other illustrative material, preserved in two 4° half-morocco slip cases.

1815, July 29

IRVING, WASHINGTON.

Birmingham [Eng.]. To Cadwalader D. Colden. Upper half of each leaf only. A. L. S. 3 p. 4°.

1829, January 30

WILKIE, SIR DAVID.

Kensington [Eng.]. To Washington Irving. Interesting letter containing small unpublished sketch of Irving. A. L. S. 4 p. 4°.

1831, April 1

NAVARETTE, MARTIN FERN'Z DE.

Madrid. To Washington Irving, in Spanish, regarding his Spanish histories. It was Navarette's writings on Columbus that led Irving to write his own life of Columbus. A. L. S. 1 p. 4°. This letter is matted and framed with line engraving of: *Christopher Columbus and his sons Diego and Ferdinand*. [Caption above engraving:] *From an ancient Spanish picture in the possession of Edward Horne, Esq'. / of Bevis Mount near Southampton*. [Signed in center:] *Wilson, sculp^t*. Engraving measures 7¼ by 9¼; framed with letter to measure 12½ by 17.

[1842 February 9]

IRVING, WASHINGTON.

[New York.] To L[ouis] Gaylord Clark [New York]. "It will give me great pleasure to meet Mr. Dickens at your house any day you may appoint. I am at present at Mr. Astors." A. L. S. 1 p. 12°.

1851, December 20

EVERETT, EDWARD.

Boston. To Washington Irving regretting inability to attend meeting in memory of James Fenimore Cooper and praising his work. Docketed with four lines in Irving's autograph. A. L. S. 3 p. 4°. Framed.

1853, June 13

MITCHELL, DONALD GRANT. (IK MARVEL.)

New York. To Washington Irving requesting introductions to Charles Dickens and Murray the London publisher. A. L. S. 2 p. 8°. Framed.

Manuscripts — Letters, continued

1856, January 3

PRESCOTT, W[ILLIAM] H.

Boston. To Washington Irving. Letter of appreciation of Irving's works, especially his life of Washington. A. L. S. 4 p. 12°. Framed with two engraved portraits of Prescott.

LITERARY MANUSCRIPTS

[1809]

IRVING, WASHINGTON.

Knickerbocker's History of New York. Author's manuscript of first page, book 3, chapter 7. 1 p. 4°.

[1839]

IRVING, WASHINGTON.

Conspiracy of the Cocked Hats. Author's manuscript of portion of the essay as published in *Knickerbocker Magazine*, October, 1839. 2 p. 8°.

Accompanied by original number of the magazine containing the essay.

[Undated]

IRVING, WASHINGTON.

The Wild Huntsman. [A tragedy.] Author's complete manuscript. 106 p. 8° and 12°.

Bound in half green crushed levant, accompanied by editor's copy of the first edition and preserved in half red morocco slip case.

First dramatization in English of the German opera, "Der Freischütz."

[Undated]

IRVING, WASHINGTON.

Abu Hassan [A farce]. Author's complete manuscript. 79 p. 12°

Bound in half green crushed levant, accompanied by editor's copy of first edition and preserved in half red morocco slip case. An English dramatization of the libretto by Franz K. Hiemer of Weber's opera "Abu Hassan." This and the above are the original manuscripts of the only plays written entirely by Washington Irving. He collaborated with John Howard Payne in writing others. The first editions are described below, under "Printed Books."

[Undated]

IRVING, WASHINGTON.

Count Van Horn. Author's manuscript of portion of essay published in *Wolfert's Roost*. 13 p. 12°.

[Undated]

IRVING, WASHINGTON.

Anecdote of Admiral Harvey. Author's original unpublished manuscript. 2 p. 16°.

Manuscripts — Literary Manuscripts, continued

[Undated]

IRVING, WASHINGTON.

Mementos of Boabdil [Last Moorish monarch of Spain]. Two-page printer's proof with 4 p. author's manuscript additions.

[Undated]

IRVING, WASHINGTON.

Alhambra. Author's manuscript of one page. 1 p. 12°.

[Undated]

IRVING, WASHINGTON.

Life of Washington. Author's manuscript notes. 1 p. 12°.

[Undated]

IRVING, WASHINGTON.

Notes for one of his Spanish histories. In pencil. 4 p. 12°.

PRINTED BOOKS

IRVING, WASHINGTON.

Abu Hassan, by Washington Irving (hitherto unpublished), with an introduction by George S. Hellman. Boston: Printed exclusively for members of the Bibliophile Society, 1924. 83 p. facsim. 8°.

An English dramatization of the libretto by Franz K. Hiemer of Weber's opera "Abu Hassan."

One of 455 copies printed by the Torch Press, Cedar Rapids, Iowa.

First edition.

IRVING, WASHINGTON.

The wild huntsman, by Washington Irving (hitherto unpublished) with an introduction by George S. Hellman. Boston: Printed exclusively for members of the Bibliophile Society, 1924. 113 p. facsim. 8°.

"Washington Irving's manuscript of 'The wild huntsman' is the first dramatization in

English of the great German opera, 'Der Freischütz.'"

One of 455 copies printed by the Torch Press, Cedar Rapids, Iowa.

First edition.

IRVING, WASHINGTON.

Notes and journal of travel in Europe, 1804-1805. By Washington Irving, with an introduction by William P. Trent, and title-page and illustrations in aquatint designed and engraved by Rudolph Ruzicka. In three volumes. New York: Grolier Club, 1921. 3 v. Illustrated. 12°.

First edition.

IRVING, WASHINGTON.

Journals of Washington Irving (from July 1815 to July 1842). Edited by William P. Trent and George S. Hellman. Boston: [Bibliophile Society], MCMXIX. 2 v. Portraits, facsim. 8°.

First edition.

Printed Books, continued

IRVING, WASHINGTON.

Journals of Washington Irving (from July 1815 to July 1842). Edited by William P. Trent and George S. Hellman. Boston: [Bibliophile Society], MCMXIX.

Editor's galley proofs of first edition, in three portfolios preserved in 4° half red morocco slip case.

IRVING, WASHINGTON.

The letters of Washington Irving to Henry Brevoort. Edited with an introduction by George S. Hellman ... New York: G. P. Putnam's Sons, 1915. 2 v. Portraits, facsimis. 8°.

One of an edition of 310 sets on Strathmore paper.

First edition.

BREVOORT, HENRY.

Letters of Henry Brevoort to Washington Irving ... Edited with an introduction by George S. Hellman ... New York: G. P. Putnam's Sons, 1916. 2 v. Portraits, facsimis. 8°.

No. 47 of an edition of 310 sets on Strathmore paper.

First edition.

BREVOORT, HENRY.

Letters of Henry Brevoort to Washington Irving ... Edited with an introduction by George S. Hellman ... New York: G. P. Putnam's Sons, 1916.

Editor's page-proofs of first edition preserved in two 4° half red morocco cases.

NOTE: The titles listed above are printed from original manuscripts in the Seligman-Hellmann collections.

IRVING, WASHINGTON.

Letters of Jonathan Oldstyle, gent., by the author of *The sketch*

book. With a biographical notice. New-York: Published by William H. Clayton, 1824. x p., 1 l., (1)6-67 p. 8°.

First edition.

Original brown paper covers, enclosed in red cloth case.

Bookplate of Jacob Chester Chamberlain.

IRVING, WASHINGTON.

Sketch book of Geoffrey Crayon, Gentⁿ. In two volumes. Vol. II [only]. New edition. Philadelphia: Carey, Lea & Blanchard, 1837. 264 p. 12°.

IRVING, WASHINGTON.

Oliver Goldsmith. New York: G. P. Putnam, 1849. 382 p. 8°.

First edition.

IRVING, WASHINGTON.

Irving gems. Selected from the works of Washington Irving. By J. H. B. Buffalo: Breed, Butler & Co., 1861. 96 p. 64°.

IRVING, WASHINGTON.

The beauties of Washington Irving. Illustrated by George Cruikshank. London: William Tegg MDCCCLXVI. xlv, 373 p. Illustrated. 12°. Half red morocco.

IRVING, PIERRE MUNROE.

Life and letters of Washington Irving ... New York: G. P. Putnam, 1862-64. Four volumes. Extended to nine and extra-illustrated by the insertion of 880 manuscripts and plates. 9 v. 4°. Each in half red morocco case.

HELLMAN, GEORGE SIDNEY.

Washington Irving, esquire, ambassador at large from the new world to the old, by George S. Hellman.

Printed Books, continued

Illustrated . . . New York: Alfred A. Knopf, MCMXXV. xi, 355 p. Portraits, facsimis, illustrations. 8°.

First edition.

HELLMAN, GEORGE SIDNEY.

Washington Irving, esquire . . . New York: Alfred A. Knopf, MCMXXV. 8°.

Publisher's dummy of first edition.

PRINTS

JACKMAN, W. G.

Washington Irving. [Facsimile autograph.] Bust, with classical drapery, looking left. Under bust: *Engraved by W. G. Jackman from a bust by Ball Hughes.* (Marble original of this bust in the Irving exhibition.) Stipple and line engraving. Vign. 7×9 framed.

HATCH & SMILLIE.

Washington Irving Esq^r. Bust, long, turned left, looking front. G. S. Newton type; fur collar. Proof before border of parallel lines and before all letters. $7\frac{1}{2} \times 9\frac{1}{2}$ framed.

From original portrait by C. R. Leslie R. A., shown in case at extreme left. Engraved by Hatch & Smillie. Line engraving on steel. Later state, with border and letters below.

HATCH & SMILLIE.

Washington Irving Esq^r. Line engraving by Smillie after Leslie, described above. Later impression with addition of shaded borders and lettering: *Washington Irving Esq^r.* [open letter.] At left: *Painted by C. R. Leslie R. A.* In center: *Steel plate.* At right: *Engraved by Hatch & Smillie.* Below in center: *Engraved for the New York Mirror 1832.* Below this in ink: *This portrait of Irving comes from the collection of L. Gaylord Clark, editor of the Knickerbocker Magazine. George S. Hellman.* Pasted on mount below engraving is inscription clipped from

a Washington Irving letter: *Your obt. servt. Washington Irving.* $9\frac{1}{2} \times 11\frac{1}{2}$.

ROBINSON, H.

David Wilkie, Esq. R. A./David Wilkie [facsimile autograph]/*Fisher, Son, & C^o, London, 1834.* Three-quarter length, seated, turned left, looking front, left hand containing palette and brushes, resting with right hand on crossed right knee. Sketch on canvas in background. Left: *Painted by Sir W. Beechey, R. A.* Right: *Engraved by H. Robinson.* Line engraving. $5\frac{1}{2} \times 7\frac{3}{4}$ mounted and framed to measure $7\frac{1}{2} \times 9\frac{1}{2}$.

CURRIER & IVES.

The residence of Lord Byron. Four-story stone house among trees at left, garden and path in front, lake with sailboat and hills in distance, seated figure and trees at right. Left: *Published by Currier & Ives.* Right: *115 Nassau St., New York.* Colored lithograph. $14\frac{1}{4} \times 10\frac{1}{4}$, in contemporary black frame. Irving visited Byron here.

CURRIER & IVES.

Sunnyside - on - Hudson. House among trees, view of Hudson River, and three sailboats in left distance, seated figure with dog in left foreground, two gardeners with lawn roller and baskets on lawn before

Prints, continued

house. Left: *Published by Currier & Ives*. Right: 115 Nassau St., New York. Colored lithograph, 11 × 16, in contemporary brown frame.

SHERWOOD, JONES & CO.

Washington Irving. [Facsimile autograph] / *London Pub^d. for the proprietors of the European Mag. by Sherwood, Jones & C^o. Pater Noster Row. April 1, 1825*. Bust, seated, looking front, leaning slightly on right hand, elbow resting on chair arm. Vign. Stipple and line engraving. $5\frac{1}{2} \times 8\frac{1}{2}$ mounted and framed to measure $8 \times 11\frac{1}{4}$.

BUREAU ENGRAVING & PRINTING.

Washington Irving / Bureau Engraving & Printing. Bust in oval from the portrait by C. R. Leslie described above. Line engraving. $3\frac{1}{4} \times 3\frac{3}{4}$. Mounted and framed to measure 6×8 .

WILCOX, J. A. J.

Matilda Hoffman / said to be the affianced bride of Washington Irving [Title in pencil]. Bust turned left. Vign. Line engraving. Proof before title. (Later impression in case below.) Signed at right below bust: J. A. J. Wilcox, Boston.

WILCOX, J. A. J.

Matilda Hoffman. Bust, vign. Looking left. Line engraving. Open letter title: *Matilda Hoffman*. See description of earlier state above. Lettered below in ink by Mr. Hellman: *Irving's first great love*. $8 \times 10\frac{1}{2}$.

HOLLYER, S.

Sleepy Hollow Church. [Title in pencil] Line engraving. Proof before

letters. At left, within the plate: *Copyright, 1910*. At right: *S. Hollyer*. Signed in pencil below the plate: *S. Hollyer*. Engraved surface $5\frac{3}{8} \times 3\frac{1}{2}$; framed to measure 7×9 .

Church made famous by the *Legend of Sleepy Hollow*. Irving is buried in the cemetery.

IRVING, WASHINGTON.

Five separately framed photos of drawings by Washington Irving, from his diaries in the Seligman collection, four of them measuring 6×8 each, and one 7×9 .

DARLEY, F. O. C.

Sunnyside. Original drawing by F. O. C. Darley [Title in pencil in Mr. Hellman's autograph.] Pencil study for vignette on title-page of 1860 edition of Irving's works. Unsigned. 6×8 framed.

SMILLIE, J. D. AND JAMES.

General line-engraved title-page of *Irving's works*. New York: G. P. Putnam, 1860, with vignette in center: *Sunnyside, residence of Washington Irving*. Engraved by J. D. and James Smillie. [Vignette for which the above item was the preliminary sketch.] Shows Irving's home with three-story tower at right which replaces a tree in preliminary sketch. 5×7 framed.

HOLLYER, S.

Washington Irving. [Pencil inscription] Line engraving, proof before letters, signed in pencil at right of plate: *S. Hollyer*. Bust turned slightly left. Portrait in middle life. Engraved surface $4\frac{1}{4} \times 5\frac{1}{2}$, framed to measure 7×9 .

Prints, continued

WAKEMAN, THOMAS.

Photograph of unsigned drawing by Thomas Wakeman of Aston Hall, near Birmingham. The original of Bracebridge Hall. Original drawing in Seligman collection. Matted and framed. Mat opening $5\frac{3}{4} \times 4$, framed to measure 7×9 .

[ANON.]

Washington Irving. Line engraving. Full length, seated on bank, left leg crossing right knee, looking left, left arm leaning on root, small dog in right foreground. Facsimile autograph below. Inscribed in ink on mount: *Irving and his favorite dog Ginger*. $5\frac{1}{2} \times 7\frac{3}{4}$, framed to measure $7\frac{1}{2} \times 9\frac{3}{4}$.

This engraving is used as a frontispiece of *Irvingiana*.

[ANON.]

Deacon Wm. Irving, father of Washington Irving. [Inscription in ink in autograph of Mr. Hellman.] Halftone proof from photograph of three-quarter bust oil portrait. Seated, right, looking front, open book in hands. Opening $4\frac{1}{2} \times 5\frac{1}{2}$.

[ANON.]

Mrs. William Irving (Sarah Sanders) mother of Washington Irving. (Inscription in ink in autograph of Mr. Hellman.) Photo-engraving from three-quarter seated portrait in oils. Turned left, looking front, hands clasped, $4\frac{1}{2} \times 5\frac{1}{2}$.

NATIONAL BANK NOTE CO.

[*Mrs. Jane Renwick*] Jean Jeffrey of Ayershire, Scotland, later Mrs. Jane Renwick of New York, the

friend of Burns, Irving and Brevoort. Line engraving. Portrait in oval, partly surrounded by floral wreath, bust looking left, as young girl. Lettered: *Jeanie*. At right: *National Bank Note Co., N. Y.* Lettered below in ink by Mr. Hellman: *Loved by Robert Burns and by Irving*; and in pencil: *Jeanie Renwick*. *Irving* 1: 129. Engraved surface $2\frac{1}{2} \times 3$. Size of mount $5\frac{1}{2} \times 7\frac{3}{4}$.

WAKEMAN, THOMAS.

[The Van Wort House, London, in which Irving wrote the *Sketch Book*.] Photograph of sketch by T. Wakeman from original in Seligman collection. Matted and framed. Mat opening $4\frac{1}{4} \times 6$, framed to measure 6×8 .

WILCOX, J. A. J.

Washington Irving. [Title in ink in lower right corner.] Bust, seated at table, turned right, facing front, fur collar, arms resting on table, open book in right hand. Left: *James Jarvis*. Right: *J. A. J. Wilcox*. Line engraving, india paper proof with full letters. Engraved surface $3\frac{1}{8} \times 4$. Framed to measure $8\frac{1}{4} \times 11$.

HALL, H. B.

Washington Irving. From a drawing by Wilkie taken at Seville 1828 / See "Life & Letters" v. 2, 311, 344. Bust facing front, signed below at left: *D. Wilkie Fecit*. Also signed beneath portrait: *Washington Irving / Seville, April 23^d, 1828*. Signed center beneath drawing: *Eng^d. by H. B. Hall*. Rule around engraving outside engraver's name. Stipple and line engraving in sepia. 6×8 framed.

Prints, continued

BLANCHARD.

[*Washington Irving* from portrait by C. R. Leslie.] Proof before title. Signed below at center: *Blanchard Sculp.* 6 × 8.

RAHN, R.

Three portraits of Washington Irving as a young man. All three are line engravings, each with mat opening $4\frac{1}{2} \times 6\frac{1}{2}$, framed to measure $10\frac{1}{2} \times 19$. Matted and framed together:

Washington Irving. Bust portrait in

octagon, looking front. At left: *A. Hirschrot, del.* At right: *R. Rahn, sc. Zürich.*

Washington Irving, Esq^r. Bust looking front, in ornamental border. Unsigned.

Washington Irving. [Open letter title with scroll decorations on shaded background.] Bust looking slightly left. Unsigned.

WAKEMAN, THOMAS.

Photograph of drawing: *The Home of Washington Irving. Sunnyside-on-Hudson River, U. S. A.* Signed in lower right corner of sketch: *Thomas Wakeman.* Matted and framed. Mat opening $6\frac{5}{8} \times 4\frac{1}{8}$. Framed to measure 7 × 9.

THE NEW YORK PUBLIC LIBRARY IRVINGIANA
ON EXHIBITION BUT NOT INCLUDED IN THE
SELIGMAN-HELLMAN COLLECTIONS

LETTERS

1842, March 22

IRVING, WASHINGTON.

Washington. To Dr. Joseph Green Cogswell [later first Superintendent of the Astor Library], offering him the position of Secretary to the American Legation at Madrid at the time that Irving was about to go to Spain as American Minister. This letter hastened John Jacob Astor's decision to found the Astor Library and make Dr. Cogswell its head. A. L. S. 2 p. 4°.

1850, August 27

IRVING, WASHINGTON.

Sunnyside [Irvington]. To Dr. Joseph Green Cogswell regarding Irving's attendance at a meeting of the Board of Trustees of the Astor Library. A. L. S. 2 p. 12°.

1854, December 4

IRVING, WASHINGTON.

Sunnyside [Irvington]. To James Lenox thanking him for the loan of certain rare books on the history of New York and inquiring regarding a collection of early Dutch poems. Docketed on back in autograph of James Lenox. A. L. S. 3 p. 8°.

Irvingiana — Letters, continued

1811-1843

BREVOORT, HENRY.

Letters to Washington Irving. 46 A. Ls. S. 4° and f° with a total of over 100 pages. Supplements the collection of letters from Irving to Brevoort in the Seligman collection. Mounted and bound in half brown morocco.

Gift of Mr. Grenville Kane.

MANUSCRIPTS

[1809]

IRVING, WASHINGTON.

Knickerbocker's History of New York. Author's manuscript of first page of chapter 6. 1 p. 8°.

1848

IRVING, WASHINGTON.

Knickerbocker's History of New York. Author's apology. Revised edition. Signed with initials and dated at end. 12 p. 12°. Inlaid.

From the Duyckinck collection.

[No date]

IRVING, WASHINGTON.

Book of the Hudson. Communipaw. The first essay in the volume. 6 p. 12°. Inlaid.

From the Duyckinck collection. An earlier draft of this manuscript is in the Seligman collection.

[No date]

IRVING, WASHINGTON.

Bracebridge Hall. Author's manuscript of three pages. 3 p. 12°.

Fourteen chapters of the manuscript of this work are in the Seligman collection.

[No date]

IRVING, WASHINGTON.

Wolfert's Roost. Author's manuscript of one page. 1 p. 12°.

[No date]

IRVING, WASHINGTON.

Life of George Washington. Author's manuscript of one page, with inscription on lower margin authenticating the manuscript, signed at New York, February 15, 1864 by G. P. Putnam. 1 p. 8°.

Irvingiana — Manuscripts, continued

[Various dates]

ASTOR LIBRARY.

Minute book of the Board of Trustees of the Astor Library. Volume 1. Photostats of four pages of the original minutes, containing two entries signed by Washington Irving as President of the Board; and the Resolutions of the Board of Trustees on the death of Irving. 4 p. f°.

BOOKS

IRVING, WASHINGTON.

Fragment of a Journal of a Sentimental Philosopher . . . New York, 1809. 38 p. 8°.

Unbound. First edition. Attributed to Washington Irving, though there is some doubt of his authorship.

History of New York, from the beginning of the world to the end of the Dutch dynasty . . . By Diedrich Knickerbocker . . . In two volumes . . . [Philadelphia] Published by Inskeep & Bradford . . . 1809. 2 vols. fold. pl. in vol. 1. Original boards uncut.

First edition.

Letters of Jonathan Oldstyle, Gent. By the author of the Sketch Book . . . New York, 1824. 87 p. 8°. Original brown wrappers.

First edition.

Salamagundi. No. 6, March 20, 1807. Pages 105-124. 12°. In original brown wrappers.

First edition of this part. Complete work, bound up from parts, in Room 303.

The Sketch Book of Jeffrey Crayon, Gent. No. 1. New York, 1819. 94 p. 8°. Original brown wrappers uncut.

First edition of this part.

The Sketch Book of Jeffrey Crayon, Gent. No. 6. New York, 1820. 120 p. 8°. Original brown wrappers, uncut.

Contains original of "Legend of Sleepy Hollow." First edition of this part. Other original parts preserved in Room 303.

PORTRAITS

LESLIE, C. R.

Original portrait in oils of Washington Irving, painted in 1820. 6½ × 8¾. Framed.

From the Lenox collection.

HUGHES, BALL.

Original marble bust of Washington Irving from life.

From the Astor collection.

NOTE: Unexhibited Irving letters will be found in Room 319; unexhibited first editions of his books in Room 303.

A FURTHER NOTE ON MASON LOCKE WEEMS

MRS. ROSWELL SKEEL, JR., has kindly sent the following note, correcting certain statements in the article, "A Brief for Parson Weems,"* which appeared in the issue of the *Bulletin* for March, 1929:

TO THE EDITOR:

While tendering my appreciation of the graceful notice of my brother's and my book on Mason Locke Weems, printed in the last New York Public Library *Bulletin*, I venture to amend two misstatements it contains.

The work on which my brother collaborated was completed and issued before his death, though not, unfortunately, before that of his friend. It had no relation whatever to Weems.

Also, in my opinion, the long-sought first edition of the Parson's *Life of Washington* is that of Keatinge. Of course, it is always possible that a still earlier issue or a different version may yet be brought to light. But on all the evidence now at hand, I greatly doubt whether an earlier one be ever found.

I offer these corrections merely for the sake of historical veracity, and to head off the formation of legends, even on unimportant points.

Truly yours,

EMILY E. F. SKEEL,
(Mrs. Roswell Skeel, Jr.)

MARCH 28, 1929.

* Mason Locke Weems, His Works and Ways. In Three Volumes. A Bibliography Left Unfinished by Paul Leicester Ford. [And] Letters 1784-1825. Edited by Emily Ellsworth Ford Skeel. New York, 1929.

NOTES AND QUERIES

A NOTE ABOUT FORTESCUE CUMING

AN AMERICAN TRAVELER AND AUTHOR

The Library has recently received the following information, "gleaned from family Bibles, etc.," by Alfred Z. Reed, of The Carnegie Foundation for the Advancement of Teaching, who is a great-grandson of the subject. Since nothing seems to have been known about Cuming to the modern editor of his travels, the biographical sketch is printed here for wider circulation. — *Keeper of Manuscripts.*

FORTESCUE CUMING, traveler and author, was born at Strabane, County Tyrone, Ireland, February 26, 1762. After studying medicine, and traveling in France, Switzerland, and Italy, he came to New York, where, in 1784, he married Phoebe, the sixteen-year-old daughter of Thomas Harisson. The birth dates of his seven children show that he lived successively in New York, Trinidad, and Westchester. He finally established his home on Cedar Hill, just outside of New Haven, in 1792. Portraits of himself and his wife by St. Memin (Nos. 54 and 737, Elias Dexter, "St. Memin Collection of Portraits") are dated 1797. His family life seems not to have been happy. In 1806 he was again in England, where he purchased lands in Ohio. These were the occasion of a trip taken in 1807-9 down the Ohio and Mississippi Rivers and through Louisiana and the Floridas, described in his "Sketches of a Tour to the Western Country," Pittsburgh, 1810 (reprinted as vol. IV of Reuben Gold Thwaites' series, "Early Western Travels," Cleveland, 1904). He seems not to have returned to his wife, who was buried in New Haven in 1821. His second wife was a Miss Butler. He died in Vermillionville, Louisiana, in 1828. His volume is described as an accurate record of social and political conditions in a backwoods area where the recent arrest and trial of Aaron Burr had aroused unusual animosities.

DR. JOSEPH SEAVY AND JOHN QUINCY ADAMS

Several months ago, Dr. C. F. Griffin, of San Francisco, wrote that he was trying to locate a volume published about the year 1833 by Longworth, and containing:

- (1) Declaration of Independence
- (2) Constitution of the United States
- (3) Washington's Farewell Address
- (4) Andrew Jackson's Proclamation on Nullification
- (5) A long preface written by John Quincy Adams, but not signed by him.

The Library owns this work, which was published by O. Longworth, New York, 1833, under the title: "The Declaration of Independence; the Constitution of the United States . . ." No authority was found for the statement that John Quincy Adams was the author of the preface — a fact which has apparently been ignored by bibliographers. The title-page bears the following reference to the preface: "To which are prefixed prefatory remarks by one of the most distinguished statesmen of the United States."

In a subsequent letter, Dr. Griffin gave as his authority an article in *The National Republican*, Washington, D. C., March 4, 1881, entitled: "An Old Relic/Letter of John Quincy Adams." The article is made up of —

(1) A few introductory remarks, in which the statement is made that "The publisher, Mr. Longworth, did not append the name of Mr. Adams, lest party prejudices should affect the sale."

(2) The letter itself in full.

(3) The preface.

The letter is as follows:

WASHINGTON, 10 DECEMBER, 1832.

DR. JOSEPH SEAVY,

122 Eldridge Street, New York:

SIR: I now enclose a preface for the publication which has been recommended by you and is contemplated by Mr. Longworth. I have endeavored to make it conformable to your views, and adapted to the purposes of the publisher, which appear to me to be correct and highly laudable. Whether I have succeeded in this desire or not, it is for him and you to judge. If it should meet your and his approbation, it is at his service. If not, I will thank you to return the manuscript to me. Your observations respecting the importance of furnishing to the people the means of being intimately acquainted with the Constitution and fundamental laws by which they are governed and protected are equally judicious and patriotic. Your proposal for the formation of associations in the several states for the preservation of the Union and of the Constitution is deserving of great consideration. But, before attempting it upon an extensive scale, it would perhaps be advisable to settle some principles upon which the associates should be agreed, and some concerted mode of action between the different societies for the promotion of the common object. It might be necessary to use much precaution in forming such societies to keep them within the precise limits for which they would be instituted. I am, with much respect, sir, your servant and fellow citizen,

J. Q. ADAMS.

The Library was able, through search of directories to establish the fact that Dr. Joseph Seavy, a physician, lived at 122 Eldridge Street from 1830 to 1833. The first entry is in 1821 (87 Hester Street); the last, 1836/7 (26 Rivington Street). No further information was found in regard to him.

Dr. Griffin is writing a short biography of this Dr. Joseph Seavy, who died in San Francisco on December 30, 1859, at the age of 71, and would be grateful for any information as to his activities in New York City.

JOHN MAYNARD ("THE HELMSMAN OF LAKE ERIE")

GARDINER D. PHILLIPS AND THE SUBMARINE
AND OTHER QUERIES

Mr. Frederick J. Shepard, former reference librarian of the Buffalo Public Library and compiler of the American Library Association "Index to Illustrations," retains unabated at the age of seventy-nine his keen interest in historical questions, particularly those relating to the local history of that region of New York State.

One problem that Mr. Shepard is anxious to solve is the following:

"The Buffalo *Commercial Advertiser*, September 13, 1845, and the *Western Literary Messenger*, October 4, reprinted presumably from some English magazine an article, 'The Helmsman of Lake Erie,' telling how John Maynard saved the passengers of a burning steamboat by sticking to the wheel, but perished himself. The English origin of the article is betrayed not only by the title but also by references to the 'quay' at Buffalo (the government pier), to the 'blue peter,' and the use of other phrases which no American acquainted with the Great Lakes would ever use. On this article are based the tolerably familiar verses by Horatio Alger, Jr., and an extract from one of John B. Gough's temperance lectures, and also a popular song in Germany at the present day, while, perhaps, it suggested John Hays' 'Jim Bludso of the *Prairie Belle*,' and in all these except the last, the hero is John Maynard, while the name of the steamer varies from the *Jersey* and the *Ocean Wave* to the *Swallow*, inappropriate enough for a lake steamer. On the night of August 9, 1841, the *Erie* was burned off Silver Creek, Lake Erie, with great loss of life, and the wheelsman, Luther Fuller, did his best unavailingly because of the burning of the rope running to the rudder to bring the boat ashore, but so far from perishing, died a drunkard and a convicted counterfeiter in the Erie, Pennsylvania, almshouse under the name of James Rafferty, November 22, 1900, at the age of eighty-seven. The problem is the authorship of the original John Maynard article, and I had suspected Dickens, but get no confirmation from the professed English expert authority on Dickens. The Buffalo Public Library has just received an inquiry as to a monument supposed to exist here to John Maynard!"

Another interesting question propounded by Mr. Shepard is the following:

"What was the actual fate of a Great Lake submarine invented by Lodovick[?] Phillips which the books say was crushed by going down too deep in Lake Erie near Buffalo, carrying the inventor, which is almost a physical impossibility; moreover he died in his bed in New York. The government had the plans of his submarine at one time but it has been impossible to learn

what became of them. There is a small picture of the submarine in 'Larousse' and in the *Scientific American* and I believe one of his principles was ultimately adopted by designers."

From a later letter:

"Gardiner D. Phillips, a native of Genesee County, invented while living in Michigan City, Ind., two submarines (perhaps more than two) one of which was wrecked in the Michigan City creek, now the harbor, and is said to be buried in the mud there, while the other, in which he is said to have made a successful trip to Chicago and back, is pictured in 'Larousse' and in the *Scientific Monthly Supplement* (one of its principles is said to be utilized in modern submarines), but in French and German submarine histories its inventor is said to have perished by being crushed in it by going down too deep in Lake Erie near Buffalo. This statement, with the qualifying 'it is stated' even crept into Capt. Maguire's submarine history in the report of the Endicott board. As a fact Phillips invented among other things a button making machine, started a factory in New York and died there in his bed about the time of the Chicago fire, as I am informed by a Michigan City authority who also said that his submarine was anchored off the Lake Erie shore and went down in a storm with no loss of life. The story that he perished in it seems to have come from a Newport lecture by the then Lieut. Francis M. Barber, printed in 1875, who informed me that he may have got it from one Hunter Davidson, who had charge of Confederate submarine or torpedo experiments and who had been trying to sell the drawings of Phillip's boat in Europe. One set of these drawings was turned over by a person named Blatchford to the United States government, but no official of many to whom I appealed was able to say what became of them. The inventor was derided in his lifetime and absolutely forgotten in death. The problem is: When and under what circumstances was his boat lost and what became of the plans?"

Other inquiries from Mr. Shepard are the following:

"What was the last name of a certain Volney Voltaire _____ who participated in Gen. William Eaton's expedition against Derne in the Tripolitan war? I thought he was commandant of the marines, but that office was held by Lieut O'Bannon."

"Who put up good money in the cause of the *Imperialist* of which you have a good file, a big New York blanket sheet of about 1868 devoted to the erection of an empire in this country and bearing the mottoes 'The empire is peace — Louis Napoleon,' and 'Let us have peace — U. S. Grant?'" . . . An article, "Imperialism in America," *Galaxy*, November, 1869, tells a good deal about the *Imperialist* but mentions no names.

"Has anyone been able to trace the origin of 'Beyond the Alps lies Italy?'"

INQUIRIES ABOUT POEMS, A STORY, AND AN IMAGE

"I am very anxious to obtain the complete text, the name of the poet and the name of the poem which contains the following lines:

Man and woman, one and inseparable, must rise or fall together;
Slave or noble, bound or free,"

"About forty years ago, a recitation was very popular which one of our borrowers thinks was called 'At the Opera' or 'A Night at the Opera'. It is not the one by G. H. Jessop nor the one by Owen Meredith. As remembered, it started thus: —

Of all the operas Verdi wrote
The best, to my thought is *Il Trovatore*
And Mario could soothe with his tenor note
A soul in purgatory . . .

"Can you supply us with the remainder of this?"

"Will you be good enough to tell me if Robert Browning, the English poet, wrote the following, and from what work it is taken:

The words have power to haunt me. Long ago
I heard them from a Stranger — One who turned
And looked upon me as I went, and seemed
To know my face altho I knew him not.
The face was weary; yet he spoke
Of giving rest — He needed rest, I think
Yet patiently he stood and spoke to those
Who gathered round him, and he turned
And looked on me. He could not know
How sinful was my life, a robber's life,
Amid the caves and rocks. And yet he looked
As though he knew it all, and, knowing
Longed to save me from it.

"If the great Browning did not write this, who did?"

"Can you tell me the source of the Christmas story 'Blue Spruce'?"

"Have you any information about the little image so popular some years ago called the Billiken?"

ANSWERED QUERIES

In answer to the appeal made, in behalf of readers, in the *Bulletin* for February, 1929, the General Reference Division of the Cleveland Public Library has sent the full text of the two following poems:

“Wanted, a Minister’s Wife”

(By “X.Y.Z.” — to be found in “Reading and Elocution,”
Anna T. Randall [Diehl] 1872, p. 315-17.)

“Ode on Hearing the Drum”

(By John Scott — to be found in Chamber’s “Cyclopedia of
English Literature,” new edition, v. 2, p. 456.)

A YEAR'S REVIEW IN THE PRINT ROOM

IN the Print Room's annual exhibition of recent additions, three American artists stand out by sheer force of numbers. One is M. I. Danforth, well known line engraver of the mid-nineteenth century, of whose work his son-in-law, Dr. H. N. Dodge, has presented 124 pieces. The other two are Thomas Moran and his wife, Mary Nimmo, noted etchers of the period of the New York Etching Club, of whose prints 51 and 35, respectively, have been donated by Miss Ruth B. Moran and Mrs. Wirt de V. Tassin.

Danforth, who became much interested in bank-note work, which specialty enlisted the service of the best engravers of the day, was one of the five engravers (a noteworthy proportion) who were among the original founders of the National Academy of Design. This large addition to his prints brings the Library's collection far beyond Stauffer's record of this artist's activity. Moreover, it adds one more name to the list of American engravers represented with notable fullness in the Print Room's portfolios: Durand, Smillie, Jones, Burt, Schoff, and not a few more.

The bold conception and vigorous execution of Thomas Moran were coupled, says Koehler, "with a successful indication of color effect," and in his reproductive etchings he showed a "truly phenomenal skill." Alfred Mumford, who wrote with enthusiastic appreciation, stressed this combination of strong personality in original plates and the quality of adapting himself when translating the paintings of others. A group of lithographs recalls Moran's notable attempt on stone, "Solitude" (1868), which has long been in the Library's collection, and which forms one of the outstanding pages in the records of lithography in this country. Mrs. Moran's strong talent, her energetic directness, her sure eye for pictorial effect, her workman-like qualities, appear clearly in the etchings here shown. The Library now has an adequately representative collection of the work of one who was a predominating figure among the group of women who responded to the impulse toward original etching felt here in the eighteen-eighties.

With the rest of the new accessions the visitor may enjoy, as usual, an *opéra bouffe* (to use the old theatrical term), a medley, which such a review of recent acquisitions inevitably offers. Here are old prints by Zoan Andrea ("Four Dancing Women"), Dürer ("Prodigal Son" and "Great Fortune"), Amman ("Hans Sachs"), among others. Modern prints, most of them in the Avery collection, there are by Besnard, Farge, Galanis, Gatier, Lionel Lindsay, G. P. L. Laboureur, Pierre, Schonk, Struck; a group of English wood engravings by

Eric Daglish, Clare Leighton, Joseph Nash, Verpilleux; and an interesting lot of proofs of illustrations and advertisements by Lepère (given by Knoedler & Co.). American work is represented by Arms, Benson, Evans, Glintenkamp, Grossman, Handforth, Hansen, Hart, Heil, Heintzelman, Lankes, Nisbet, Piper, Plowman, Rosenberg, Zadig, and the bookplate artists: Chambers, French, Macdonald, S. L. Smith, J. W. Spenceley, A. R. Wheelan. Finally, a few interesting oddities — German sporting prints of the early nineteenth century, portraits of British horses by Adam, Helmlehner, Rugendas.

For these annual exhibitions of additions it is always the same story: no central motive, naturally, but much diversity, and therefore something for many tastes. The exhibition will be on view from April to November.

A list of the principal additions follows:

F. W.

RECENT ADDITIONS TO THE PRINT COLLECTION

OLD PRINTS

Aken, Jan van.

Travellers on horseback. Dutuit 17, 2d state. Etching. **MEPC**

Amman, Jost.

Hans Sachs. Andresen 11, 2d state. Etching. **MEOG**

Andrea, Zoan.

Four dancing women. After Mantegna. B. XIII: 305, no. 18; P. V: 79, no. 18. Line engraving. **MERC**

Duerer, Albrecht.

Prodigal son. B. 28; K. 5. Line engraving. **MEOG**

The great fortune. B. 77; P. 77; K. 33. Line engraving. **MEOG**

Gillot, Claude.

Fables de Houdart de La Motte. Edition of 1727. Etchings (110). **MESG**

Jode, P. de, the younger.

Marco van Vaernewyck. Le Blanc 140. Line engraving. **MEPC**

Lorch, Melchior.

{Mounted Oriental.} Bartsch 4?; Le Blanc 27-95? Woodcut. **MEOG**

MODERN PRINTS

Class marks MEZAF, MEZAM, and other combinations of MEZA, indicate S. P. Avery Print Fund.

BRITISH AND AUSTRALIAN

Blatherwick, L.

Christmas roses. Lithograph. **MEVT**

Daglish, Eric Fitch.

Yellow hammers. Wood engraving. **MEZAM**

Fitton, James.

May Day. Lithograph, partly in color. **MEVT**

Leighton, Clare.

Breaking up an old barge. Wood engraving. **MEZAM**

*Modern Prints — British and Australian, contd.***Lindsay, Lionel.**Solicitor; Guitar player; Shanty on the rise. Etchings. **MEXS**Toucans; Turkeys; Broken fence; Jester. Wood engravings. **MEXS****Nash, John.**Common objects; Propoxalctus. Wood engravings. **MEZAM****Verpilleux, Émile Antoine.**York. Wood engraving, in color. **MEVS**

FRENCH

Besnard, Paul Albert.La mère malade. 1889. Coppier 75. Etching. **MEZAC****Farge, Henri.**Café Lavena à Venise. Etching. **MEZAEB****Galanis, Démétrius.**Cassis, la route. Etching. † **MEZAEB**Table et objets. Wood engraving. † **MEZAEC****Gatier, Pierre.**Vue de Combloux (Haute-Savoie). Line engraving. **MEZAEB****Laboureur, Jean Émile.**A Lotz-Brissonneau. Wood engraving. **MEZAEC****Laurencin, Marie.**Tête d'arlequin. Etching in color. **MEZAEB****Lepère, Auguste.**Proofs, various states, of illustrations and advertisements; 48 pieces. Wood engravings. **MESO****Pierre, Gustave.**Devant la glace. Etching. **MEZAEB**

OTHER EUROPEAN COUNTRIES

Freissig, Vojt.St. Nicholas Church, Prague, Independence Day. Linoleum cut, partly in color; — Prague Castle; Slovakian musician. Aquatints in color. **MEOT****Jonckh, Jan.**Distel en Pompoenen. (Silver thistle.) Etching. † **MEZAI**Zilverreigers. (White herons.) Lithograph. **MEZAL**Ducdalf (Mooring post); — Gazel; — Hemelsche Berg (Old Oak). Wood engravings. **MEZAK****Truck, Hermann.**Portrait of a young woman. After Roger van der Weyden. Fortlage [251]. Drypoint. **MEOP**Frederick Brown. F. [252]. 1928. Drypoint. **MEOP****Early Nineteenth Century German Sporting Prints.**Portraits of race horses, by Albrecht Adam (1), M. G. Helmlehner (2), and J. M. Rugendas (1). Lithographs. **MEOO**

UNITED STATES

NINETEENTH CENTURY

Danforth, M. I.

Line engravings; 39 pieces.

MEYE, † MEYE, †† MEYEProofs of work of bank note companies in which Danforth was interested: 85 pieces. Stauffer [460 R-T₁]. Line engravings. **MEYE****Low, Will H.**Narcissa. Etching. **MEYG****Moran, Mary Nimmo.**Etchings; 35 pieces. **MEYG, † MEYG****Moran, Peter.**Landscape and cattle. After Van Marcke. Keppel 84. Etching. **MEYG****Moran, Thomas.**Etchings (37); mezzotints (3); glass clichés (3). **MEYG, † MEYG**Lithographs (8). **MEYK**

CONTEMPORARY

*Etchings, Drypoints and Aquatints***Addams, Clifford.**[Venice.] **MEYM****Arms, John Taylor.**St. Germain l'Auxerrois, Paris. **MEYM****Benson, Frank Weston.**[Flying ducks.] Paff [224]. **MEYM****Grossman, Elias M.**Samuel Greenbaum. **MEYM****Handforth, Thomas.**Maltese nursemaid; — Narcissa; — Passing shower; — Ahmed; — Promenade; — Graveyard chess. **MEYM****Hansen, Armin.**Snug Harbor. **MEYM****Hart, George O. ("Pop").**

Weighing and matching the birds.

(a) Before title. (b) With title.

Riding academy. **MEYM****Heil, Charles Emile.**Young bluebird; — Young chickadee; — Ruffed grouse. **MEYM****Heintzelman, Arthur W.**Old man in Italian cap. H. 69, 2d state. **MEYM**

Modern Prints—United States: Contemporary, continued.

Nisbet, Robert H.

Moonlit skies;—Maples by the river;—Portland Head;—Connecticut hills;—Evening;—Moonlight with trees;—Hurrying river;—Fisherman, Lake Tohopekaliga, Fla. **MEYM**

Plowman, George T.

Venice. 1925;—Hoosac Bridge;—Old workshop, Blewbury, England;—Bourges, France;—Connecticut River at Hanover, N. H.;—Cathedral of St. John the Divine. 1927;—Ledyard bridge, Hanover, N. H.;—Woodstock bridge, Vermont;—Pownal bridge, Vermont;—Salisbury, England;—The Quiet bay. **MEYM**

Rosenberg, Louis C.

Via del Pianta, Rome. **MEYM**

Lithographs

Plowman, George T.

Cathedral of St. John the Divine. 1927;—View of changing New York. 1927. **MEYO**

Wood Engravings and Linoleum Cuts

Evans, John W.

Slabsides. Catskill Mountain cabin of John Burroughs. After H. W. Wack. **†MEYI**

Glintonkamp, Henry J.

On the farm, winter;—Sussex, N. J., landscape;—A nude;—Reclining nude;—Market place, Chalula, Mexico;—The serenade, Cuernavaca, Mexico;—On the wall. **MEYN**

Lankes, J. J.

Blue Ridge cabin;—George Tucker house;—Man ploughing;—Moonlight scene;—House by roadside;—Man ploughing with two horses. **MEYN**

Piper, Natt.

Silverado Cañon. In color. **MEYN**

Plowman, George T.

State House, Boston, Mass. 1927. **MEYN**

Ruzicka, Rudolph.

Adams mansion, Quincy, Mass. 1929. **MEYN**

Zadig, Bertrand.

Illustration for "Hunger fighters." **MEYN**

Book Plates

Jay Chambers (1), Timothy Cole (1), E. D. French (1), J. J. Lankes (2), A. N. Macdonald (14), S. L. Smith (1), F. Spenceley (1), J. W. Spenceley (3), A. R. Wheelan (24). Various processes.

NEWS OF THE MONTH

GIFTS

DURING the month of March, 1929, there were received as gifts 3,906 volumes, 11,138 pamphlets, 34 maps, and 19 prints. Among the many interesting items were the following:

BOOKS PRIVATELY PRINTED AND IN LIMITED EDITIONS: From the Provincial Library of British Columbia, Victoria, B. C., came a copy (No. 157 of 500 copies printed of the first edition) of "The Colonial Postal Systems and Postage Stamps of Vancouver Island and British Columbia 1849-1871 . . . by Alfred Stanley Deaville," Victoria, 1928. From Miss Dorothy Davis Coburn, Chestnut Hill, Mass., came a copy of her work, "The House on the Down and Other Poems," privately printed, 1928. Mr. Philip Lehman gave the Library a copy (No. 11 of 300 numbered copies printed for private distribution) of the catalogue of The Philip Lehman Collection, New York, Paintings, Text by Robert Lehman, Paris, 1928 (printed on paper, with Mr. Lehman's watermark, specially made by the Papeteries d'Arches). From Mr. John Markle came a copy (No. 83 of 300 copies printed on Whitchurch hand-made paper, and bound in crushed levant, hand tooled) of "John Markle, Representative American, edited by Robert J. Spence," New York, 1929 (autographed by the author). From Louis Sherry, Inc., came a copy (one of a limited number printed by W. E. Rudge for presentation purposes) of "The Story of Louis Sherry and the Business he Built," by Edward Hungerford, New York, 1929. Mr. Hardy Wilson, London, gave a copy (No. 3 of an edition limited to twenty copies) of his work, "The Dawn of a New Civilization," London [c. 1929].

PRINTS: From the Misses Welcher, Hartford, Conn., came two woodcuts — "Der Tod als Erwuerger" by Steinbrecher, and "Der Tod als Freund," by Jungtow. Mr. Bertrand Zadig gave the Library two of his woodcuts — "Automobile" (advertisement) and illustration for *The Forum*.

MUSIC: Mrs. Henry Hamilton Moore Lyle gave 12 opera scores (to be placed with the Bessie Abbot Story collection, presented October 29, 1927, by Mrs. Francis J. Pickens). Cantor Boris Charloff, Brooklyn, gave copies of his compositions, "Korutz M'chomer, and "Fun Yarid." From Mr. Howard Van Sideren, Tuxedo Park, N. Y., came "The William Mason Papers"; 3 scrap-books containing mounted programs; one annotated calendar; European theater and concert programs; 9 volumes of the works of William Mason; and other material.

COLLECTIONS: From Miss Kate Mayhew came a collection of play-bills of productions in which Miss Mayhew took the leading part, such as "M'liss," by Bret Harte, "Fanchon" (her own creation), and others; a collection of programs including souvenir and official program of the Actors' Fund Fair, 1892, and others; Maude Adams Calendar for 1903. Miss Mayhew took part in the first performance of the "Black Crook." From Mr. Samuel Charney came a collection of Jewish books, periodicals and calendars. The Colony Club gave 102 volumes and 6 pamphlets. Mrs. Benjamin M. Day gave a miscellaneous collection of periodicals. Dr. Rodolfo Garcia Arias gave a collection of material relating to Argentina. From the Hudson River Day Line came 51 volumes, 42 pamphlets, and 249 periodicals. Mr. Gordon Ireland gave a collection of philatelic periodicals and auction catalogues. From Mrs. James B. Keogh came 18 volumes of fiction, poetry, travel, etc. Mr. H. B. Machen gave 34 volumes, 2 pamphlets, and 8 periodicals. From Mr. Albert L. Webster came 23 volumes, 111 pamphlets, 106 periodicals, and 2 maps.

INTERESTING MISCELLANEOUS ITEMS: Miss Frances Basinger, East Springfield, N. Y., gave the Library 29 sheets of inscriptions copied under her leadership, and mimeographed, from old cemeteries in the town of Springfield, Otsego County, New York, by members of Gen. James Clinton Chapter Daughters of the American Revolution, in 1928. The Rev. W. Herbert Burk gave a copy of his work, "Valley Forge and the French Alliance," [c. 1928]. From Mr. B. W. Fleisher, Publisher and Editor of *The Japan Advertiser*, Tokyo, came a copy of the "Enthronement Edition of the *Japan Advertiser*." From Mr. Ernest Kletsch, Curator of Union Catalogs, Library of Congress, Washington, D. C., came two copies of "A Union Catalog of Photo Facsimiles in North American Libraries; Material so Far Received by the Library of Congress, compiled by the Curator of Union Catalogs of the Library of Congress," 1929. From Mr. M. Hartzoff came four scrap-books containing autographs, etc. From Mr. Theodore Fred. Kuper, Thomas Jefferson Memorial Foundation, New York City, came 6 pamphlets relating to Thomas Jefferson. Mr. W. R. Leigh gave the Library photographs of two paintings belonging to him — portraits of Raleigh Colston and John Marshall Colston of Honeywood, Berkeley County, Virginia, painted by Sarah M. Peale. Mr. Harry Koeffler gave the six volumes of the "Library of Law, Banking and Business . . ." Chicago, 1919. Dr. J. E. Montague gave two copies of his work, "Troubles We Don't Talk About" [c. 1928]; and a copy of his work, "Taking the Doctor's Pulse and Another Essay" [c. 1928]. From Mr. G. R. F. Prowse, Winni-

eg, Canada, came a mimeographed copy (two pamphlets) of his work, "Exploration of the Gulf of St. Lawrence 1499-1525," Winnipeg, 1929. Mr. William H. Royce gave a copy (specially inscribed to the Library) of his work, "A Balzac Bibliography . . . Writings relative to the Life and Works of Honoré de Balzac," Chicago, 1929. Mr. Perry Walton, Boston, gave a photographic copy of the Paul Revere copper-plate which forms the frontispiece of the "New England Psalm-singer," by William Billings (the frontispiece in the Library's copy being imperfect). Prof. James Blanton Wharey, University of Texas, Austin, Texas, gave a copy of the edition of "The Pilgrim's Progress" edited by himself, Oxford, 1928.

ADDITIONS AND USE OF THE LIBRARY DURING MARCH, 1929

DURING the month of March, 1929, there were received at the Library 27,588 volumes and 12,893 pamphlets. (These include the additions to both Reference and Circulation Departments.) The number of volumes issued for home use by the Circulation Department, was 1,017,069.

The total number of recorded readers in the Reference Department, Central Building, was 178,578, no record being kept of the use of books in the open reference shelves. The estimated number of readers and visitors at the Central Building was 339,000 — arrived at by adding 15 per cent to the incomplete count made by the doormen (294,500).

THE SECRET GARDEN

BY FRANCES HODGSON BURNETT

IT is but natural that The New York Public Library, situated in the literary center of the United States, should become the depository of our authors and their heirs who wish a safe and permanent home for their precious manuscripts and first editions. During the past winter the Authors' League of America decided to place the first editions of the books by its members in a special collection in this Library and to add inscribed copies of the new books as they appear.

Another welcome addition to this large and growing collection of literary material has just been given to the Library by Mr. Vivian Burnett, son of the late Mrs. Frances Hodgson Burnett, author of "Little Lord Fauntleroy" and many other famous novels of the past forty years. This is the manuscript of Mrs. Burnett's delightful children's story: "The Secret Garden," which first appeared in *The American Magazine*, November, 1910, to August, 1911, and which was published in book form by the Frederick A. Stokes Company, of New York, in 1911, in an octavo volume of 375 pages with colored plates.

Mr. Burnett tells that it was his mother's practice to write, in ink or pencil, a first draft of her works, and later make a clean copy for the printer. This manuscript is the first draft. Written partly in ink, but largely in pencil, it fills 374 folio pages and bears on its first page the title under which the story was originally written: "Mistress Mary Quite Contrary." On the enclosing envelope the author has written in ink: "Mistress Mary" [This title has a line drawn through it]. "/MSS [sic] (Original)/The Secret Garden/F H B."

The New York Public Library contains many important literary manuscripts, from the days of Poe and Irving to the present, as well as collections of original letters of many great authors, including Irving, Melville, and Lafcadio Hearn, to name only a few. No more appropriate, safe or convenient depository could be found for the literary treasures of our native authors.

R. W. G. V.

CAUSES AND PREVENTION OF DETERIORATION IN BOOK MATERIALS

COMPILED BY ROBERT P. WALTON

Science and Technology Division *de*

"In any effort that tends to the careful preservation of the literary treasures contained in our museums and libraries, I am sure that I shall be cordially seconded by the Society of Arts: a society that — whilst it pushes forward, diving into the future — can well afford to pause and think kindly of the protection of those landmarks of the past yet remaining to us.

"My observations will not now touch upon the value of individual rarities in either books or bindings, but rather be directed to the better order or good government of that sanctuary — the Library — the place in which is embalmed the holiest part of man's nature; the place to which the devotee of to-day may retire and commune with the master-minds of past ages — be it for consolation or amusement." — *John Leighton, 1859.*

ONE of the chief responsibilities of libraries and similar institutions is the preservation of the literature with which they have been entrusted. As indicated in the following compendium, all our present literature is confronted with the possibility of complete extinction within a spectacularly short period. The purpose of this compilation is to emphasize further the seriousness of the situation and to present a readily accessible account of those efforts which have been directed toward the attempt to check the extensive forces of disintegration now at work.

The sources of such information — paper and leather periodicals principally — are such that it is particularly difficult to attain even approximate completeness in any compendium such as this. Nevertheless, it is felt that the most important conclusions and trends of investigation are summarized here. With respect to the paper section, a number of additional references can be found in the exhaustive bibliography of paper materials recently published by C. J. West in conjunction with the Technical Association of the Pulp and Paper Industry (Bibliography of Paper Making, 1900–1928).

The order of arrangement here has been chronological. In giving descriptive summaries, it has been found convenient in some cases to incorporate abstracts which have been published previously in other journals; in such instances, reference has been made to the journal from which the abstract was taken. Mr. Daniel C. Haskell, Mr. E. P. Schulze and Mr. L. H. Fox have kindly assisted in the collection of this material.

R. P. W.

PRESERVATION AND DURABILITY OF BOOK PAPERS

PLINIUS SECUNDUS, GAIUS.

Naturalis historia. Book 13, chapter 27. About 60 A. D.

Quoting from a work by Cassius Hemina, Pliny states that Hemina broke into a grave and found books of paper (*papyrus*) in a good state of preservation. According to the account, the period of interment had been 535 years and the remarkable preservation of the paper was attributed to the presence of citrus leaves, whose bitterness prevented the attack of worms and such.

MARTENS, A.

Ueber Druckpapiere der Gegenwart. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, Ergänzungsheft 4, 1887, and Jahrg. 6, 1888, p. 126-129.)

Tests indicate that a great part of the works of this period are in eminent danger of extinction because of the rapid disintegration of the paper on which they are printed.

JOHNSON, ROSSITER.

Inferior paper a menace to the permanency of literature. (Library journal, New York, 1891, v. 16, p. 241-242.) * *HA*

Speaks of certain volumes published in 1836 entirely from cotton and which were yet in perfect condition. Other volumes published only a few years previously from wood pulp paper were in a grievous state of deterioration. Remarks "centuries hence some bibliographer will construct an ingenious theory to explain why no books were printed between 1870 and 19—, the date at which we accomplish the destruction of the forests and begin again on cotton."

In a note states that Justin Winsor tried in vain to induce editors of leading Boston dailies to publish a few copies of each issue on good paper.

Reprinted from the *New York World*.

HERZBERG, W.

Die Ausdauerfähigkeit unserer Papiere. (Die Chemische Industrie, Leipzig, 1895, Jahrg. 18, p. 476-479.)

3 - *VOA*

Because paper made in former ages from rags only has proved highly durable and been found in good condition even centuries after manufacture, it is frequently assumed that production from pure rag-pulp is still at the present day an essential and sufficient condition to ensure an

equal degree of permanence. This conclusion the author considers to be too far reaching, since the manufacturing process now used differs widely from that formerly in vogue. The preliminary treatment of the rags by boiling with lime, soda, etc., is probably an improvement — resulting in less injury to the fiber — on the old putrefaction process. The modern bleaching process with chloride of lime is, however, a more serious factor. Undoubtedly, at this stage, the fiber is more or less attacked, although there is no reason to suppose that its resisting power is seriously impaired. The danger lies rather in the incomplete removal, from the pulp, of decomposition products — especially calcium chloride. The latter in contact with alum (added during sizing) would give rise to aluminium chloride — a substance which readily gives off free hydrochloric acid, and therefore, must exert a destructive action on cellulose. Again, when "antichlor" (sodium thiosulphate, etc.) is used to destroy excess of bleach, free sulphur is always deposited on the fiber, and this will in the course of time exert an injurious effect. Another possible source of weakness is the substitution of rosin for animal sizing. Mineral loading and staining materials may in general be regarded as inert bodies, having no action on cellulose. Some varieties of ultramarine, however, are apt to liberate free sulphur after a time.

As regards the durability of papers produced, wholly or partially, from wood-cellulose, esparto, etc., opinions are still divided, some holding that these rag substitutes should never be used for paper that is intended to remain sound for long periods, and vice versa. In the case of unbleached cellulose and ground wood no doubt exists; these materials are known to deteriorate rapidly.

The author concludes, therefore, that this question of durability can only be definitely decided by series of systematic experiments extending over a long period of time.

Abstract in *Jour. Soc. Chem. Ind.*, 1896, v. 15, p. 290.

BLADES, WILLIAM.

The enemies of books. Chicago: A. C. McClurg & Co. [1896?] 151 p. illus. 12°. * *HHL*

A rather non-technical treatment describing variously inclined individuals as negative influences in the preservation of literature. Certain religious fanatics, collectors, "biblioclasts" and "bibliomaniacs" are heavily scored. The destruction of the Alexandrian library and lesser instances of vandalism are referred to in an interesting fashion. Observations of pseudo-scientific importance are contributed in the chapters on bookworms and other vermin.

There are several editions of this book and a French translation.

Preservation and Durability of Book Papers, continued.

ROSS, C. F.

The industrial uses of cellulose. Royal Society of Arts, Journal, London, 1897, v. 45, p. 684-696.) *VA*

Discusses resistance and durability of various paper-making materials. "Papers from mechanical wood pulp are rapidly attacked by atmospheric oxygen, undergoing a veritable combustion, the oxidation being attended by disintegration and disintegration."

JAMES, WILBERFORCE.

Care of newspapers. (Library journal, New York, 1897, v. 22, no. 10, p. 50-51.) ** HA*

Devoted chiefly to methods of binding old newspapers at the Lenox branch of The New York Public Library. Each leaf is mounted on boards and each number interleaved with a sheet of stiff paper. The stiff paper between each number is half an inch larger all the way around than the newspaper it protects, so that in turning over the leaves it is not necessary to touch the newspaper at all.

CONFERENCE of Italian librarians. Library journal, New York, 1898, v. 23, p. 667.) ** HA*

At a session of Italian librarians at which the deterioration of paper was discussed, it was resolved to ask the government to control the standard of paper for government publications and for a given number of books, reviews, and newspapers for the government libraries.

VANS, J., CHAIRMAN.

Report of the committee on the deterioration of paper. (Society of Arts, Journal, London, 1898, v. 46, p. 597-601.) *VA*

The main purpose of the work of the committee has been to ascertain the validity of the proposition that the fibrous raw materials—namely, "mechanical wood" or ground wood pulp, wood celluloses, etc.—more recently introduced are inferior, with regard to the relative permanence of the paper made from them, to the older celluloses obtained from cotton, flax, and hemp. The physical qualities of paper may be expressed under the following three heads:

Strength, measured in terms of the weight or strain which it will support.

Elasticity and Texture, measured by elongation under strain and resistance to rubbing.

Bulk, expressed in the precise terms of specific gravity or weight per unit of volume.

There must also be taken into account the properties belonging to the paper as a chemical

substance (or mixture), *i.e.*, its actual composition, and the liability to change under whatever conditions of storage or use to which it may be subjected. The committee feel convinced that these physical and chemical constants must come more and more into practical consideration, and ultimately regulate the consumption and, therefore, production of papers.

With regard to the deterioration of papers, the Committee have come to the following conclusions:—The tendencies to deterioration of papers are marked (1) by disintegration, (2) by discoloration. These are independent effects, but may be concurrent, and indeed are notably so in paper containing mechanical wood pulp.

1. *Disintegration*.—Actual disintegration has been found to occur in all grades of paper; it is the result of chemical change of the fibres themselves, and in some cases could be traced to the effect of illuminating gas upon the atmosphere of the rooms in which the books had been stored. In the case of the rag papers examined, the effects appeared to be due to acid bodies, which may have been present in the original paper as made, may have resulted from reactions going on in the paper itself after making, or may have been due to products of gas consumption. With papers made from mechanical wood pulp, disintegration is due to oxidation, and is accompanied by an alkaline reaction of the paper.

Discoloration is also stated to affect all papers to a certain degree, in some cases a uniform discoloration taking place, whilst in others the more marked effect of a darkening of colour spreading inwards from the margins, occurs. The former is the result of changes in the paper itself, whilst the latter is caused by external means, such as the action of an atmosphere charged with the products of combustion of coal gas. As a general conclusion, it is stated that discoloration of ordinary cellulose papers (as distinguished from those containing mechanical wood pulp), under usual conditions of storage, is proportional to the amount of rosin which they contain, or more generally to the rosin and the conditions employed for fixing it in the ordinary process of engine-sizing. With regard to paper likely to be used in chemical laboratories, &c., it should be noted that mechanical wood pulp is stained a deep yellow, and esparto and straw celluloses, pink, by aniline and other coal-tar bases.

The following hints are given in connection with the preparation of printing papers:

Sizing (engine-sizing).—Whenever possible, book paper should be sized with a minimum quantity of rosin. Two per cent. (calculated dry) is suggested as a maximum, and it is stated that the quality of "hard-sizing," usually produced with large proportions of rosin, is superfluous for nearly all the ordinary uses of printing papers. The presence of starch is objectionable, though its employment may be necessary in the case of heavily-loaded papers.

Acidity.—A slightly acid reaction (acid to litmus, neutral to methyl orange) should be

Preservation and Durability of Book Papers, continued.

EVANS, J. Report on the deterioration of paper, *continued.*

given to the paper by finishing with the normal slight excess of alum.

Chlorides. — The paper should contain a minimum quantity of chlorides.

Colour. — It is stated that in ordinary practice the question of the permanence of the colour of the paper when made is not much considered. The committee suggest that when very white printing papers are required, the sizing should be reduced to the practical minimum; and also that for ordinary printing papers a lower standard of colour might be adopted.

Loading. — It is concluded that 10 per cent. of total mineral constituents is the extreme limit for papers for publications of permanent value.

Abstract in *Jour. Soc. Chem. Ind.*, 1898, v. 17, p. 595.

O'CONOR, JOHN FRANCIS XAVIER.

Facts about bookworms. New York: Francis P. Harper, 1898. 87 p. 12°. *HHL

Has examined seventy-two specimens of various kinds of insects of such a character as to be classified under the general name of bookworms.

PROCÈS verbal de la Conférence internationale pour la conservation et la restauration des anciens manuscrits tenue à Saint-Gall. (*Revue des bibliothèques*, Paris, 1898, année 8, p. 415-425.) *HA

DAUZE, PIERRE.

La question de la conservation du papier dans les bibliothèques publiques et privées et un moyen de la résoudre. (Congrès international des bibliothécaires, Paris, 1900, Procès-verbaux et mémoires, p. 227-231.) *HA

States that the conservation of paper has become highly problematic or even impossible since the displacement of rag paper. The composition of paper first began to be modified about 1830. After some 30 years the unhappy consequences of this innovation began to put in their appearance. In order to avert the accelerated disappearance of modern literature, suggests that the government and libraries refuse to purchase works other than those printed on paper conforming to official specifications.

HIRIART, LÉON.

Note sur les insectes qui ravagent les bibliothèques. (Congrès international

des bibliothécaires, Paris, 1900, Procès-verbaux et mémoires, p. 135-138.) *HA

Les INSECTES qui s'attaquent aux livres et les meilleurs moyens à employer pour leur destruction. (Congrès international des bibliothécaires, Paris, 1900, Procès-verbaux et mémoires, p. 44-45, 259-263.) *HA

A prize of 1,000 francs is posted for the best memoir presented on the subject of the above title. A prize of 500 francs is posted for the second best memoir. The reward is designated the "Prix Marie Pellechet" after its donor.

L'ÉTUDE et la destruction des insectes ennemis des livres, mais spécialement de ceux qui attaquent les reliures. (Congrès international des bibliothécaires, Paris, 1900, Procès-verbaux et mémoires, p. 45, 260-263.) *HA

An anonymous prize of 1,000 francs is posted for the best memoir presented on this subject.

YVE-PLESSIS, ROBERT.

Petit essai de biblio-thérapeutique; ou, L'art de soigner et restaurer les livres vieux ou malades. Paris: H. Daràgon, 1900. 95 p. 12°. *HHL

KLEMM, PAUL.

Ueber die Farbebeständigkeit der Papiere. (*Klimsch's Jahrbuch*, Frankfurt a. M., 1901, Bd. 2, p. 32-36.) 3 - MDSA

A general discussion. States that pure cellulose would last indefinitely without discoloration. The manufacture of a paper from pure cellulose, however, is entirely impossible. Papers containing wood pulp are generally recognized as having a strong tendency to turn yellow or even brown. The yellow discoloration, however, is not confined to such papers; wood-free papers are also susceptible to discoloration when sized with rosin. This is attributed to the presence of light sensitive soaps which are contained in the paper. The soaps consist of iron in combination with organic acids of the rosin. The iron is present as an adventitious impurity introduced with the alum used to precipitate the size.

DURABILITY of paper. (*Paper trade journal*, New York, 1902, v. 35, no. 16, p. 504; no. 17, p. 536, 538; no. 18, p. 566.) †VMA

Preservation and Durability of Book Papers, continued.

LEMM, PAUL.

Vergilben holzfreier Papiere. (*Papier-Zeitung*, Berlin, 1902, Jahrg. 27, 961-963.) 3-† VMA

Qualitative tests of the yellow discolorations indicate that the product is an iron-rosin soap. The intensity of discoloration is generally proportional to the iron content. A method is given for the determination of iron combined in soap form.

DISCOLORATION of paper. (*Paper trade Journal*, New York, 1903, v. 36, no. 8, 244.) † VMA

LOULBERT, C.

Les insectes, ennemis des livres; leurs auteurs. Moyens de les détruire. Paris: Alphonse Picard & fils, 1903. xxxviii, 59 p. illus. 8°. * HHL

A response to the conditions of the "Prix Marie Pellechet" and recipient of the second prize of 500 francs. Contains an annotated bibliography of 94 references which constitutes an excellent survey of the previous efforts along this line. States that the first rational description concerning insects which injure books was presented by Frisch in 1724. There have been prizes offered previously for the best solution of this problem; these were posted in 1774 at Göttingen and in 1842 in Mons. The author proceeds here to give a detailed classification and description of those insects which damage books. Considers carbon disulfide to be the most efficacious agent for the destruction of these insects. Besides the rapid deterioration of good pulp paper, considers that certain insects are a factor. Mixing toxic substances with the paper or with the sizing will prevent the attack of insects but is likely to cause an even more rapid deterioration because of chemical corrosion. A number of insects preferentially attack the paste used in binding. Recommends that substances such as mercuric chloride, arsenious acid and borax be intermixed with the adhesive. Flour from horse chestnuts, by reason of its bitterness, can be mixed to advantage with starch paste.

ITTLE, ARTHUR DEHON.

The durability of paper. (*Printing*, Cambridge, 1903, v. 1, no. 4, p. 5-118.) ††* IPA

Reprinted by Little and Walker, Boston, 1913, † VBA p.v.10, no.19.

Emphasizes the distinction between ground-wood papers and wood-fiber papers. The latter,

when made from properly purified wood fibers as bleach sulfite and soda fiber, is of much greater permanence than the former. "In a ground-wood paper ultimate disintegration is certain, whereas in pure fibres the change should only come through inadvertance. . . The unregulated use of bleaching agents is probably responsible for the destruction of more high grade paper than any other cause. In selecting a paper for durability one should therefore avoid papers which are brilliantly white unless he can assure himself that the fibre substance has in no way suffered, and that all traces of the chemicals used in bleaching have been removed." A general specification is given for a durable paper.

HERZBERG, W.

Dauerversuche mit Papieren von verschiedener Stoffzusammensetzung und Herstellungsweise. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1904, Jahrg. 22, p. 243-250.) 3-VEA (*Prussia*)

About a thousand papers are to be stored and tested after a definite interval of time.

KORSCHILGEN, J. P.

Dauerhaftigkeit der Papiere und ihre Prüfung. (*Papier-Zeitung*, Berlin, 1905, Jahrg. 30, p. 2570-2572, 2722-2723.) 3-† VMA

Paper for permanent records and hard wear should only be made from strong, sound rags; old and tender rags give a paper which deteriorates rapidly by use. The nature of the sizing is probably of little importance, provided it has been properly incorporated. The tensile strength is of importance from the point of view of durability, owing to the fact that the strongest papers are generally those made from long and sound fibers, and include those papers of which the fibers are beaten wholly or partly to fine fibrillæ which interlace well and the presence of which is the best guarantee of long-wearing qualities. The tensile strength is greater in the machine way than in the cross way, whereas the breaking stretch is greater in the cross way owing mainly to the longitudinal tension under which the paper is dried. Consequently a book of which the paper is folded in the cross way will be less durable than one in which the binding folds are parallel to the machine way. The author argues strongly against the custom of judging a paper by the mean tensile properties of the two directions; for durability, it is only the weakest direction which counts, and the specifications should state minimum values for breaking length and stretch. Rag papers are easily made with a ratio of 66 per cent. between the weakest and the strongest directions; the best rag papers properly beaten

Preservation and Durability of Book Papers, continued.

KORSCHILGEN, J. P. Dauerhaftigkeit der Papiere, *continued.*

will even show ratios of 85-90 per cent. Short-fibered papers from straw, esparto and deciduous wood cellulose are easily made with a ratio of 60-65 per cent., but papers composed of coniferous wood cellulose generally show a ratio of only 40-50 per cent. between the two directions. In such cases the mean strength gives a very false idea of the real strength. The most important mechanical test for durability is the loss of tensile strength and elasticity produced by folding the paper backwards and forwards a given number of times (say, five double creases) under standard conditions in the Schopper creasing machine. A paper containing a high proportion of gelatinised cellulose (wet beaten) generally possesses extremely high tensile qualities, but it may be very brittle and of low durability, in which case it will be immediately condemned under the folding test. By means of the folding test also the presence of weak or old rag fibres, deficient beating, bad felting, over-drying and hydrocellulose are detected. Wood celluloses and other rag substitutes show up badly under this test. The author suggests that, if lignified fibres be excluded, the specifications of the German "normal" papers can be made efficient measures of durability without making any reference to the fibrous composition. A kind of natural selection in these respects will be made by specifying a minimum breaking length and stretch together with a maximum loss of these values after the folding test. For instance, "normal" papers of the first class should have a minimum breaking length of 5000 m., minimum breaking stretch of 3.5 per cent., and a maximum decrease in these values after five double creases of 20 per cent. — J. F. B.

Abstract in *Jour. Soc. Chem. Ind.*, 1905, v. 24, p. 983.

POMORTZEFF, M.

Procédé de traitement des étoffes, draps, papiers et autres substances en vue d'en assurer la solidité et l'imperméabilité. (1905, French patent no. 356497.)

See also English patent 15518 (1905).

Abstract in *Jour. Soc. Chem. Ind.*, 1905, v. 25, p. 16, 425.

HERZBERG, W.

Dauerversuche mit Papieren von verschiedener Stoffzusammensetzung. (Königliches Materialprüfungsamt,

Mitteilungen, Berlin, 1907, Jahrg. 25, p. 82-99.)

3 - VEA (Prussia)

The Materialprüfungsamt has undertaken experiments to test the durability of papers by storing samples and testing them at long intervals. In the present report the results are given of strength and elongation tests on 162 papers of class 1 (all rag without fillers), 224 of class 2 (rag with not over 25 per cent other pulps and not over 25 per cent ash), and 255 of class 3 (any pulp except lignified fiber, and not over 15 per cent ash). These papers had been lying open to the air and to a little light for 12 years. There is no very marked difference seen in the deterioration of the three classes of paper, although class 1 shows a greater percentage that have decreased in strength and a smaller percentage that have decreases in elongation, than classes 2 and 3. The variations in the tests are too great, however, for any more detailed conclusions to be drawn at this time regarding the relative durability of these three classes.

Also in *Papier-Zeitung*, 1907, Jahrg. 32, p. 2350-2352; *Wochenblatt für Papierfabrikation*, 1907, Jahrg. 38, p. 1882-1885.

Abstract in *Chem. abst.*, 1907, v. 1, p. 2491.

Die Zukunft unserer Druckwerke. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1907, Jahrg. 25, p. 116-119.)

3 - VEA (Prussia)

Martens called attention 20 years ago to the uncertain future of the paper in modern use for many books and periodicals. At that time it was found that out of 100 periodicals of permanent value, only 6 were printed on paper which was likely to last for many years. To obtain more data on this subject the Materialprüfungsamt is now testing samples from about 400 books and periodicals furnished by the Library of the University of Berlin. One instance is given of a work published in 1881, which is now falling to pieces. The properties of the paper were mean breaking-length 1550 m., elongation 1.8 per cent, folding-class O (one double-fold), resistance to crumpling extremely low. The fiber composition was linen 40, cotton 30, wood-pulp 25 straw-pulp 5. The ash was 21 per cent. This example shows clearly that the fiber-composition is not the only important consideration, for this paper was 70 per cent rag, and contained no lignified fiber. The physical tests are just as important as the composition, because the best of fiber can be so handled as to make the poorest of paper. In the present case an additional outlay of 2½ cents on a volume selling for \$2.50, would have permitted the use of paper of class 8a which would probably last for centuries.

Also in *Papier-Zeitung*, 1907, Jahrg. 32, p. 3067; *Wochenblatt für Papierfabrikation*, 1907, Jahrg. 38, p. 1986-1988.

Abstract in *Chem. abst.*, 1907, v. 1, p. 2634.

Preservation and Durability of Book Papers, continued.

HERZBERG, W.

Zerstörung der Leimfestigkeit von Papier durch Bedrucken. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1907, Jahrg. 25, p. 154-155.)

3 - VEA (Prussia)

Another case of the effect of printing ink on sizing has been observed, similar to the envelope paper reported on previously. A book paper, originally well sized, was printed with red, blue, and black lines. When tested as usual, by the drawing across the paper of heavy writing-ink lines, the ink spread and ran through wherever the writing ink crossed a printed line, probably on account of the destruction of the sizing caused by the varnish of the printing ink.

Also in *Papier-Zeitung*, 1907, Jahrg. 32, p. 267; *Wochenblatt für Papierfabrikation*, 1907, Jahrg. 38, p. 2862.

Abstract in *Chem. abst.*, 1907, v. 1, p. 3057.

Füllstoffe und die Dauerhaftigkeit des Papiers. (Papier-Zeitung, Berlin, 1907, Jahrg. 32, p. 2113-2114.)

3 - † VMA

The requirements as to the content of ash "normal papers," as laid down by the German government in 1886, were dropped from the specifications of 1904. In discussing the justice of this change, the author states that there is no reason why a paper containing mineral fillers should deteriorate any faster than one without fillers, if it have initially the same physical properties. Durability depends more upon the conditions to which the paper is subjected than upon its composition. The high strength tests required of the better classes of normal papers have, up to the present, prevented fillers from being used much in excess of the old ash requirements; but if more mineral fillers can be used and the tests still met, it should be regarded a step forward rather than backward.

Abstract in *Chem. abst.*, 1907, v. 1, p. 2490.

RANKE, JOHANNES.

Eine ernste Gefahr für unsere Bibliotheken. (Zentralblatt für Bibliothekswesen, Leipzig, 1908, Jahrg. 25, p. 23-206.) * HA

Discusses work of the Materialprüfungsamt and the committee of the Society of Arts, as well as of other investigators, in regard to the deterioration of paper.

Also in *Königliches Materialprüfungsamt, Mitteilungen*, Berlin, 1908, Jahrg. 26, p. 137-138.

HERZBERG, W.

Schutz unseren Geistesdenkmälern. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1908, Jahrg. 26, p. 105-137.) 3 - VEA (Prussia)

The author has examined 435 samples of paper supplied by the Berlin University Library and taken chiefly from treatises and periodicals devoted to the arts and sciences. Such books partake of the nature of permanent records of importance, and it might be expected that, in comparison with the cost of the book, the small difference between the cost of a good paper and a bad paper would not be considered. The standard paper considered satisfactory for publications of this importance is that specified in the list of Prussian "normal" papers as "class 8a," a pure rag paper, with mechanical properties corresponding with the "strength-class 4"; for works of subordinate importance, paper of "class 8b," composed of any non-lignified fibres, but of the same strength-class, would be admissible. The work of the author has been to ascertain what proportion of the papers in actual use conform with these standards, and thus have a reasonable prospect of surviving for any length of time under the conditions of use in a reference library. Considering first the fibre composition of the papers, and excluding books printed before the second half of the 19th century, the author has been able to compare the results with those of a similar investigation made 20 years ago by A. Martens. The figures are given in the following table:

Year	No. of samples tested	Percentage of samples belonging to Fibre-Class.		
		I.	III.	IV.
1887....	123	2	33	60
1907....	419	9	70	21

Class I. = pure rag; Class III. = any non-lignified fibres; Class IV. = any fibres whatever, including mechanical wood fibres.

Thus there has been a distinct improvement in the direction of excluding the extremely perishable mechanical wood fibre from valuable publications. But the author's tests of the mechanical properties, which could only be made in full on 246 samples, showed an extremely unsatisfactory state of things. Only 1.6 per cent. of the papers tested, fulfilled all the specifications of "strength-class 4." About one-third of the samples showed a sufficiently high breaking-length or breaking-stretch, but only 18 per cent. were up to the standard in both respects. The quality of resistance to repeated creasing showed the worst results, only 1.8 per cent. of the samples reaching the standard specified for class 4. Yet this quality is probably one of the most important factors in the durability of a paper when used in the form of a book. The author states most emphatically that a specification based on composition alone is not sufficient to ensure a durable book paper, in fact some of the

Preservation and Durability of Book Papers, continued.

HERZBERG, W. Schutz unseren Geistesdenkmälern, *continued.*

worst examples cited refer to papers composed mainly or entirely of rag fibers. The quality of the raw material and its suitable treatment in the process of manufacture are really of more importance. These can only be ensured by a strength specification. The author asks for a commission representing the various interests, with a view to legislation, making it compulsory that all copies of printed matter deposited in or purchased by the public libraries should be printed on papers of the "normal" class 8a or class 8b. In the case of treatises, valuable books, etc., class 8a, a pure rag paper, should be used; in the case of periodical literature a general regulation for the use of rag papers would cause too heavy a demand, and paper of class 8b would be permissible. If necessary special "library copies" would have to be printed to conform with these regulations.

Abstract in *Jour. Soc. Chem. Ind.*, 1908, v. 27, p. 639.

Also in *Papier-Zeitung*, 1908, Jahrg. 45, p. 1763.

KIRCHNER.

Durability of paper. (Paper trade journal, New York, 1908, v. 47, no. 10, p. 56.) † *VMA*

VEITCH, FLETCHER PEARRE.

Suitable paper for permanent records. (United States. — Department of Agriculture, Yearbook 1908, Washington, p. 261–266.) *VPZ*

"The result of the various operations of paper making is a compromise. The operations which make clean, white paper make it weak and subject to slow changes which lead ultimately to its destruction. Those which make a strong paper do not give as clean a sheet and at the same time increase its transparency greatly. The processes which make the paper more opaque make it weaker, and those which give good clear printing or writing qualities hasten its destruction. . . . When the buyer attaches more importance to quality than to appearance, all paper will be better." States that in the manufacturing process, insufficient cooking may produce a paper which will probably be strong when first made, but will not prove durable because of the impurities which were unaffected by cooking and which it still contains. Overcooking, on the other hand, also weakens the fibers. Oxidizing agents used in bleaching have a very marked positive effect on deterioration. All chemicals added during the process should

be thoroughly washed out of the pulp before it is made into paper. The slower the drying process the more durable the paper.

BARTSCH, C.

Die Bücherdesinfektion mittels feuchter heisser Luft und deren Einwirkung auf die Festigkeit von Papier. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1909, Jahrg. 27, p. 138–143.) 3 – *VEA* (Prussia)

CHIVERS, CEDRIC.

The paper and binding of lending library books. (American Library Association, Bulletin, Chicago, 1909, v. 3, p. 231–259.) * *HA*

A study of the chemical and fibrous composition gave no significant conclusions as regards durability of the books. The physical condition of the paper is of more decisive importance. "The most injurious treatment in recent years to which paper has been subjected is that of overstitting and beating its pulp, and so impregnating it with air as to form the feather-weight papers, which are among the worst with which we have to deal." Excellent photomicrographs of surface and transverse sections of various papers are given. It is considered important that books should be bound with the grain across the page. When a book is made with the grain of the paper down the page and the paper is folded and pierced for sewing a lack of tensile strength ensues, amounting to 75 per cent.

Abstract in *Chem. abst.*, 1910, v. 4, p. 667.

Also in *World's paper trade review*, London, v. 52, p. 1011.

WILEY, HARVEY WASHINGTON, AND C. H. MERRIAM.

Durability and economy in papers for permanent records. A report submitted by H. W. Wiley, and C. Hart Merriam, including paper specifications, by F. P. Veitch. Washington, 1909. 51 p. illus. 8°. (United States. — Department of Agriculture. Report no. 89.) *VPZ*

"A small edition of each publication, or certainly of those of scientific value, should be printed on high-grade paper for distribution as permanent records to public and institution libraries. This paper should consist of at least 75 per cent rag stock, should be strong and thoroughly well made to withstand much handling. . . . Low quality rags or severely treated

Preservation and Durability of Book Papers, continued.

ILEY, H. W., and C. H. MERRIAM. Durability and economy in papers, *continued*.

gs may yield a weaker or less durable paper an is produced from materials which in the iginal state are inferior." Factors in the anufacturing process which cause deteriora-on are undercooking, overcooking, rapid dry-g at hot temperatures, and excess of rosin ze. "The addition of loading materials is trimental to the strength and durability of per." Methods of testing and specifications e given in extensive detail. These specifica-ons are by F. P. Veitch, Chief of the Leather nd Paper Laboratory.

DLUND, T.

Schwefelsäure im Papiere. (Papier-abrikant, Berlin, 1910, Jahrg. 8, p. 55-766.)

Abstract in *Jour. Soc. Chem. Ind.*, v. 29, p. 553.

ILL, FRANK PIERCE.

The deterioration of newspaper pa-per. (American Library Association, ulletin, Chicago, 1910, v. 4, p. 675-78.) * *HA*

According to the author's experience many of e papers published within the last 40 years ad begun to discolor and crumble to such an tent that it would hardly pay to bind those hich had been folded for any length of time. ractically all of these newspapers had been inted on cheap wood-pulp paper. . . Some- ing of the history of wood-pulp paper is quoted om Albrecht Pagenstecher, whose father in- oduced the process in America. A letter to r. Pagenstecher by Prof. Herzberg of the niversity of Berlin is also quoted. In this a ethod is given for restoring old and brittle pers. The method is to dip the sheets one by e into a cellite solution and then hang them o dry or spread on large meshed nets. It is aimed that this method does not damage the per body and makes it possible to preserve wspapers for a long time.

Also in *Library journal*, New York, 1910, 35, p. 299-301.

TARTENS, A.

Festigung morscher Papiere oder ergamente durch Behandlung mit Cel-lösung. (Königliches Materialprü-ngsamst, Mitteilungen, Berlin, 1911, hrg. 29, p. 57-60.)

3 - *VEA (Prussia)*

A collodion preparation called "zapon" var-h has previously been recommended for the reservation of decayed documents, but it is not ite unobjectionable on account of its inflam-

mability and liability to chemical changes and discoloration. The author now advocates the use of "cellit" varnish which is claimed to be free from the objections recognized in the case of "zapon." "Cellit" varnish is a solution of a par-ticular modification of cellulose acetate in a mixture of alcohol, ethyl acetate, ethyl acetoace-tate and camphor. The suitability of this prepa-ration for the above purpose has been called in question by Schluttig, who objects that the liquid and the film of varnish produced from it have a reddish color and a distinctly acid re-action, that a portion of the solvent is not readily volatile and the varnish dries very slowly, lastly that it is not suitable for treating photo-graphs. The author replies to these contentions, stating that the red coloration was due to the use of iron vessels and that the preparation is colorless if stored in glass or stoneware, that the acidity can only amount to traces left in the ethyl acetoacetate and cannot injuriously af-fect the documents, and that the varnish is not intended to be used for the treatment of photo-graphs on collodion-coated papers.

Abstract in *Jour. Soc. Chem. Ind.*, 1911, v. 30, p. 414.

REINICK, W. R.

Insects destructive to books. (Ameri-can journal of pharmacy, Philadelphia, 1911, v. 83, p. 503-515.)

Portion on paper condensed in *Le Papier*, 1911, année 14, p. 197.

BEADLE, C., AND H. P. STEVENS.

Destruction of paper in transit by insects. (World's paper trade review, London, 1912, v. 57, no. 21, p. 1050.)

PRESERVATION of newspapers. (Ameri-can Library Association, Bulletin, 1912, v. 6, p. 116-118; discussion, p. 118-120.) * *HA*

Report of an A. L. A. committee consisting of F. P. Hill, H. G. Wadlin and Cedric Chivers. Report covers different suggestions made to it during the year including "special editions" and use of "cellite" or "celestron" coatings. Certain experiences are quoted which indicate that paper is less subject to deterioration if it is bound im-mediately as received and not allowed first to remain for some time in contact with the light and air.

Roos, J. O.

Undersökningar öfver finpappers hållbarhet, med särskild hänsyn till Svenska statens normalpapper. (Svensk kemisk tidskrift, Stockholm, 1912, v. 24, p. 110-115.) *PKA*

One of the chief faults of the Swedish normal paper is the injurious influence of $Al_2(SO_4)_3$.

Preservation and Durability of Book Papers, continued.

Roos, J. O. Undersökningar öfver finpappers, *continued.*

Animal and rosin sizing have about the same degree of influence on the durability of paper.

Abstract in *Chem. abst.*, v. 6, p. 3516.

SCHOELLER, VIKTOR.

Ueber Vergilben von Papier. (Wochenblatt für Papierfabrikation, Biberach, 1912, Jahrg. 43, p. 3222-3225, 3408-3409, 3489-3491, 3673-3675, 3963-3965, 4148-4150, 4336-4338.)

"Papers containing mechanical wood pulp discolor very readily with age, and papers containing straw and esparto pulp are likewise subject to discoloration. Chemical wood pulp turns yellow to a less extent, while a paper made entirely from rag suffers slight discoloration . . . Unsized, unbleached cotton or linen half-stuff shows no tendency to discolor. . . The most important cause of the discoloration of paper is the rosin size. All rosin-sized papers turn yellow. . . Rosin develops a darker color on standing due to polymerization or autooxidation, and it is to this fact that the discoloration of rosin-sized papers is chiefly due. By previous treatment of the rosin with bleaching powder, this polymerization may be accomplished and size made from rosin so treated has no effect on the discoloration of paper." See patent by Schoeller.

Dissertation, Munich, 1912.

Abstract in *Chem. abst.*, 1913, v. 7, p. 699.

Verfahren zur Fabrikation von nicht vergilben dem Papier. German patent no. 257158 (1912).

The yellow color which develops in rag paper is attributed to the rosin size. To prevent this action the rosin is first submitted to the action of some oxidizing agent such as bleaching powder or permanganate.

BRIGGS, J. F.

Rosin as a factor in paper discoloration. (Pulp and paper magazine of Canada, Gardenvale, Que., 1913, v. 11, no. 20, p. 686-687.) † *VMPA*

[BROOKLYN Daily Eagle plan.] (Library journal, New York, 1913, v. 38, p. 2.) * *HA*

An editorial commending the plan whereby the Brooklyn paper offers to furnish to libraries a special edition for permanent preservation.

FROHBERG, ARNO.

Festigkeitswerte verschiedener Zellulosen und deren Aenderung durch die Bleiche. (Wochenblatt für Papierfabrikation, Biberach, 1913, Jahrg. 44, p. 3599-3601.) † *VMPA*

Bleaching causes a high loss in folding strength. The tearing strength (lengthwise) is influenced to a less degree. Even a moderate amount of overbleaching with bleaching powder causes a marked decrease in strength by virtue of the formation of oxycellulose.

NEWSPAPER preservation. (Library journal, New York, 1913, v. 38, p. 53.) * *HA*

A short note announcing the reported intention of three newspapers, besides the Brooklyn *Daily Eagle*, to print "library editions" and the adverse comment of the New York *World*.

NORRIS, JOHN.

Preservation of paper. (Library journal, New York, 1913, v. 38, p. 16-20.) * *HA*

An article prepared by the chairman of the committee on paper of the American Newspaper Publishers Association, in response to a request from librarians for a better paper. Submitted to a committee of the American Library Association, Nov. 26, 1912. A discussion of the methods by which improvement may be obtained, the composition of newspaper print, the complaint of librarians, United States Government specifications, Government commission report on special paper, the Library of Congress method for preserving old newspaper files, data relating to storage of newspaper files in public libraries and by commercial concerns.

Also in American Newspaper Publishers Association, *Bulletin* 2795 ("B" special), p. 1133-1140, Nov. 30, 1912.

ZSCHOKKE, BRUNO.

Untersuchungen über das Vergilben von Papieren. (Wochenblatt für Papierfabrikation, Biberach, 1913, Jahrg. 44, p. 2976-2981, 3165-3168.) † *VMPA*

These experiments were carried out independently of the recent work by Schoeller, but are nevertheless a direct confirmation of a number of these earlier findings. Apart from the presence of mechanical wood pulp, rosin size is the sole cause of discoloration. The color change is due to heat and light, while atmospheric oxidation is considered to have very little effect on the action. The results are in disagreement with Klemm as regards the direct relation of

Preservation and Durability of Book Papers, continued.

CHOKKE, BRUNO. Untersuchungen über das Vergilben von Papieren, *continued.*

discoloration and iron content. The heating test is indicative of the tendency of the paper to discolor, but the test is not of even a roughly quantitative nature. Analytical determination of the rosin content of the paper is also a valuable indicative test and it may be safely assumed that a paper containing less than 1.0 per cent rosin will not discolor seriously with age.

Abstract in *Chem. abst.*, 1913, v. 7, p. 3661.

ARTSCH, C.

Dauerversuche mit Pergament-, Pergamentersatz- und Pergamynpapieren. (Königliches Materialprüfungsamt, Mitteilungen, Berlin, 1914, Jahrg. 32, p. 510-518.)

3 - VEA (Prussia)

CAUSE of paper turning yellow. (Paper trade journal, New York, 1914, v. 58, no. 18, p. 38.) † VMA

DURABILITY of high grade paper. (Paper trade journal, New York, 1914, v. 58, no. 19, p. 38.) † VMA

AAS, B.

Aus welchen Ursachen kann das Verwelken organischer Fasern oder der aus ihnen hergestellten Fabrikate abgeleitet werden? (Papierfabrikant, Berlin, 1914, Jahrg. 12, p. 891-894, 919-925.) † VMPA

"To prevent discoloration of paper, alum free iron and bleached rosin should be used in sizing; there is some doubt as to the suitability of bleaching powder for bleaching rosin. Varying temperature and moisture content of the paper on the machine should be carefully avoided."

Abstract in *Chem. abst.*, 1914, v. 8, p. 3858.

YDENBERG, HARRY MILLER.

Preservation of modern newspaper residues. (Library journal, New York, 1915, v. 40, p. 240-242.) * HA

Paper read before meeting of teachers of journalism at Columbia. Mentions the use of certain compounds for treating paper. Such methods, however, were generally unsatisfactory for various reasons. It was considered necessary that some binding material be applied to the sheets which would exclude the air, would hold

the files together, would be flexible enough to allow turning of the pages and transparent enough to allow the text to be easily read through the material. The use of chiffon or light thin silk and the use of Japanese tissue paper seemed to offer a possible solution of the problems. Sheets were covered with these materials, using rice paste, and exposed to the sun for periods of 100 to 150 hours. Unprotected paper turned yellow and brittle very rapidly. Paper protected by the silk turned yellow less rapidly and paper protected by the Japanese tissue showed comparatively slight effect by the sun and remained encouragingly flexible. The use of Japanese tissue was further shown to be mechanically satisfactory. To bind an ordinary daily paper in this way would require \$420 per year. Accordingly the method is too expensive for general use, although so far it seems to be the cheapest and most practical method yet devised.

NEWSPAPER files disintegrate soon. (New York Times, Sept. 3, 1917.) * A

An interview in which Director E. H. Anderson of The New York Public Library describes the method of preservation by Japanese tissue and emphasizes the necessity of thus preserving newspaper files.

SCARONE, ARTURO.

El libro y sus enemigos. Montevideo: Imprenta y casa editorial "Renacimiento," 1917. 207 p. illus. 8°.

* HHL

A study of the insects which invade libraries and museums.

SÉE, PIERRE.

Sur les moisissures causant l'altération du papier. (Académie des sciences, Comptes rendus, Paris, 1917, tome 164, p. 230-232.) * EO

FRENCH, GEORGE.

The present discontent with newspaper print. (Paper, New York, July 24, 1918, no. 20, p. 15-16.) † VMPA

Proposes that a better quality paper be used when supplying libraries and other institutions wishing to preserve newspaper files.

HITCHINS, ALFRED B.

The yellowing of paper. A study of the causes or principal factors producing the yellowing of paper. (Paper, New York, July 24, 1918, p. 11-15.) † VMPA

A large number of samples were subjected to the action of light, moist heat, and dry heat

Preservation and Durability of Book Papers, continued.

HITCHINS, ALFRED B. The yellowing of paper, *continued.*

and the degrees of yellowing measured photometrically. Sheets made without size showed practically no yellowing under the test conditions. Sheets sized with different amounts of rosin evidenced that the degree of yellowing is dependent upon the amount of rosin present. Concludes that no matter how carefully the paper is prepared, the addition of rosin as a sizing material will, in the course of time, produce yellowing. Sheets containing various quantities and combinations of rosin, iron and gelatine were further prepared. (The iron was added in various amounts to the alum used to precipitate the size.) It is found that the presence of iron is a very important factor and that the degree of yellowing is more or less proportionate to the amount of iron introduced. States that it is generally conceded that an animal-sized paper will yellow more than one which is free of gelatine sizing. The experiments seem to bear out this point thoroughly. Concludes that in cases where it is necessary that a paper retain its original color, it is important to use as little rosin size as possible, consistent with the degree of sizing required, and to use always an iron-free aluminum sulphate as the precipitant. The animal sizing should be omitted or kept as low as possible.

LYDENBERG, HARRY MILLER.

Bibliography of paper deterioration. (Paper, New York, July 17, 1918, v. 22, no. 19, p. 12-13.) † *VMPA*

Forty-one entries, a number of which have been incorporated in this bibliography.

The YELLOWING of paper. (Paper makers' monthly journal, London, 1918, v. 56, p. 40-41.) † *VMPA*

"Yellowing is most quickly brought about by light or heat, for if both of these factors be excluded and the paper exposed freely in a dark cold room, the change is almost imperceptible. It is well known that the papers most quickly degraded are those containing a high proportion of lignified fiber, as it is only necessary to expose them in the sunlight for a short time to obtain a marked reduction to yellow or brown. The greater the percentage of mechanical woodpulp or lignified fiber, the stronger is the alteration of color. In the case of wood-free papers, the causes of yellowing are the formation of soaplike compounds of iron with rosin and fatty bodies. The amount of such compounds is a measure of the extent to which yellowing is likely to take place by lapse of time. . . . When the rosin size was extracted early from samples so as to remove the yellowing compounds, the paper retained its original color, thus proving that rosin was an agent in

the degradation of color. Rosin iron soap, a compound very sensitive to light easily contributed to the yellowing of papers. . . . The yellowing is not an oxidation effect, for the same effects were obtained in an atmosphere of nitrogen."

A translation of a section by the same title in the 4th edition of Herzberg's *Papierprüfung*. Fifth and sixth editions of this volume have since appeared, which contain the same section somewhat amplified. The original works referred to are by Klemm, Schoeller and Zschokke.

This translation also in *Paper*, New York, 1918, v. 22, March 13, p. 11-12.

DECAY of paper in hot climates. (Pulp and paper magazine of Canada, Gardenvale, Que., 1919, v. 17, p. 955.)

† *VMPA*

Also in *Paper*, 1920, v. 25, no. 20, p. 971.

[The DISEASES of paper.] (Papeterie, Paris, 1919, v. 41, p. 394-397.)

GALIPPE, V.

Des microorganismes vivant dans le papier; leur résistance à l'action de la chaleur et à celle du temps. (Académie des sciences, Comptes rendus, Paris, 1919, tome 169, p. 814-817.) * *EO*

It has been shown that filter paper heated in an autoclave at 120° C. for half-an-hour still contains in its fiber a large number of living bacilli. Examination of samples of paper made in the 15th and 18th centuries, of a sample of Chinese paper made long before the time of the discovery of printing, and of a sample of papyrus dating back to 200 B. C. showed that in every case living bacilli were present in the fibers of the samples.

Abstract in *Jour. Soc. Chem. Ind.*, 1919, v. 38, p. 896A; *Chem. abst.*, 1920, v. 14, p. 1218; *Iberica*, 1920, v. 13, p. 20.

SÉE, PIERRE.

Les maladies du papier piqué. Paris: O. Doin et fils, 1919. 168 p., 17 pl. 8°.

VMP

General conclusions:—1. The stains on musty or molded paper, which had formerly been ascribed to the action of insects are in reality caused by certain lower fungi. 2. These fungi frequently secrete a diffusible pigment. The colored zone is often visible on the two faces of the paper and, if diffusion is marked, is even capable of successively traversing several pages of a book. 3. In addition, these fungi partially destroy the fibers of paper and sometimes cause perforation. 4. The infection can be caused by non-sterilized material introduced into the pulp, can be acquired by the pulp during

conservation and Durability of Book Papers, continued.

ÉE, PIERRE. Les maladies du papier piqué, *continued.*

the periods of manufacture or can be acquired by the finished paper after more or less prolonged periods of time. 5. The conditions under which the molds vegetate in the paper, vary with the species. There are the perfect forms *Chaetomium*, *Myxotrichum*, etc.), the fertile filamentous forms (*Stachybotrys*, *Aspergillus*) and sterile (*Fusarium*) and the fumagoide forms (*Alternaria*, *Stemphylium*). 6. The life span of the organisms also varies with the species. For certain of them it is several years. 7. The fungi which grow on paper can be designated as "papyricoles" and constitute a flora specially adapted to a specific medium which is paper. Those destructive effects (stains, perforations, etc.), which have been observed on old books, can be reproduced artificially by systematic culturing of the "papyricole" molds on sterilized paper. 17. Fumigation by formaldehyde, because of the sterilizing action, inhibits or arrests the musting of volumes.

RIBERT, and BOUVIER.

[Durability and conservation of paper.] (Papeterie, Paris, 1920, v. 42, p. 38-352, 386-392.)

The various durabilities of cotton rag stock, chemical pulp and mechanical pulp are discussed. Cooking of the raw materials should be just sufficient to dissolve out impurities, followed by a thorough washing to eliminate soluble products formed during cooking. Proper bleaching consists in oxidizing all substances other than the cellulose. Addition of acids and heating the stock to hasten bleaching is usually detrimental. A limited quantity of properly purified filling materials is not detrimental to the durability of paper.

Also in *Paper*, 1920, v. 27, no. 4, p. 13-14; no. 5, p. 18-19; no. 6, p. 20-21; no. 7, p. 23-25.

Abstract in *Chem. abst.*, 1920, v. 14, p. 2551-2552.

INDALL, ROBERT WALTER.

The deterioration of paper. (In his: Paper technology. London: Charles Griffin and Co., 1920. 8°. p. 10-11.) VMP

"Papers containing mechanical wood become brittle, lose strength, and discolour very rapidly. This is due to slow oxidation of the non-cellulose constituents in the wood. Even traces of ground wood render a paper liable to decay. Papers containing straw and esparto cellulose are more resistant than those containing ground wood. The admixture of excessive amounts of clay and similar loadings is scarcely a direct cause of decay, but since a corresponding increase of

sizing ingredients is necessary to bind the mineral matter to the fibre, the power of resistance to deterioration is lowered. . . Sizing ingredients, such as gelatine and starch, only produce a marked deterioration in paper under conditions which favour decomposition of the sizing material itself — namely, moisture in the air. The nitrogenous compounds in commercial gelatines are excellent mediums for the growth of many forms of bacteria. Rag papers sized with gelatine placed in stoppered bottles with a few drops of water and kept at a temperature of 80° F. will rapidly exhibit micro-organisms of great variety. Rosin size in paper acts indirectly as a cause of loss in quality by reason of changes set up by sunlight. . . Impurities due to careless manufacture are a frequent source of trouble."

SUTERMEISTER, EDWIN.

Effect of bleaching on strength of stock. (In his: Chemistry of pulp and paper making. New York, 1920. 8°. p. 249-254.) VMP

Contradicting Froberg finds in the case of sulfite fiber that bleaching increases the folding strength, although with soda fiber the strength is reduced by bleaching. The copper number of all fibers, however, is increased by bleaching.

KLEMM, PAUL.

Rasches Vergilben von holzschliffhaltigem Papier. (Papier-Zeitung, Berlin, 1921, Jahrg. 46, p. 1954.) † VMA

Rapid discoloration of a particular shipment of paper was attributed to the action of aniline vapors. These latter possibly arose from certain printer's varnishes. The yellow discoloration of mechanical wood pulp by aniline is stated to be an extremely sensitive reaction.

LYDENBERG, HARRY MILLER.

Saving the newspaper files for posterity. (New York Evening Post, April 2, 1921.) * A

A rather detailed account of the attempts by The New York Public Library and other institutions to preserve newspaper files.

MATERIAL for history is endangered. (New York Times, August 15, 1921, p. 12.) * A

States that the problem is particularly serious in India where the climate is hot and wet.

TIMES files saved by a new method. (New York Times, August 12, 1921, p. 12.) * A

Describes the use of Japanese tissue paper by The New York Public Library.

Preservation and Durability of Book Papers, continued.

The TIMES war news. (New York Times, August 13, 1921, p. 8.) * A

Preservation of World War clippings at Princeton is described. At a cost of \$20,000 a scrap book of 81,242 pages has been prepared. The clippings were treated with a specially prepared paste which acts as a preservative. After being mounted the loose sheets were placed between blotters and each submitted to a 3-ton pressure. This pressure was maintained for five weeks with each sheet, a careful watch being kept from day to day to see that the pressure was uniform. The result was that all the moisture was taken from the paste leaving the columns of printed matter a permanent part of the page.

HAAS, B.

Über Eindämmung und Behebung der Krankheits- und Zerstörungerscheinungen von wertvollen Büchern, Handschriften und Zeichnungen. (Chemiker-Zeitung, Cöthen, 1922, Jahrg. 46, p. 561-562.) † VOA

Abstract in *Chem. abst.*, v. 17, p. 2192.

ADAMS, SAMUEL H.

Fade-outs of history. (Collier's weekly, New York, May 12, 1923, p. 14.) * DA

"The ancients wrote their messages on the eternal rocks. We write ours on the transient trees, pulped and rolled into perishable paper. In a word our principal records of the present day and recent history are already in process of resolving themselves into an inferior grade of sawdust."

Quoted in *Globe and commercial advertiser*, New York, May 30, 1923.

ANDÉS, LOUIS EDGAR.

The characteristics of paper. (In his: The treatment of paper for special purposes. London, 1923. 8°. p. 190.) VMP

"The deterioration of the paper must be sought in the selection and preparation of the raw materials—the pulping mill, for instance, being run in such a way that the fibres are injured and ground too fine. In bleaching again, insufficient care is used in protecting the fibres from the chemicals in the treatment, the washing may be inadequate and so forth. It must also be remembered that any earthy substance added to the fibres reduces their felting power and tensile strength of the finished paper."

RECORDS that will not endure. (New York Herald, June 3, 1923, p. 4.) * A

"The journals that add so much to our knowledge of the colonial period in the United States, the papers like the old New York PACKET, that reflect so well the difficulties encountered in making a nation out of 13 unfriendly states, were printed on rag paper which will carry its story 500 years from now as it does to-day. . . . The wood pulp paper now in use crumbles and breaks to bits in less than a lifetime."

SOME experiments toward the preservation of paper made by The New York Public Library.

Printed at The New York Public Library for distribution at the Paper Industries Exhibition, Grand Central Palace, New York City, April 9-14, 1923.

Specimens exhibited have been treated with gummitte, sprayed with cellulose acetate, dipped in cellulose acetate, treated with varnish, pasted on cambric, treated with hemp tissue, covered with condenser tissue, covered with rope tissue and covered with Japanese tissue paper.

GESELL, WILLIAM H.

Bacteria that dissolve paper. (Paper makers' monthly journal, New York, 1924, v. 62, no. 5, p. 201-202.) † VMPA

MATAGRIN, M.

Les ennemis du papier et comment on l'en preserve. (Papeterie, Paris, 1924, v. 46, p. 646-650; 1925, v. 47, p. 562-566, 614-618, 710-714, 750-754, 997-1001, 1138-1145; 1926, v. 48, p. 25-29.)

Discusses the damage caused by rodents, insects, molds, fungi, and bacteria; the deterioration due to moisture and chemical agents; and the methods used to prevent such destructive effects.

Abstract in *Chem. abst.*, 1926, v. 20, p. 2071.

KOHLER, S., AND G. HALL.

Investigations into the durability of paper. (World's paper trade review, London, 1925, v. 84, no. 21, p. 1610, 1612, 1614.)

LYDENBERG, HARRY MILLER.

Inferior paper endangering the permanence of the printed page. (Pulp and

Preservation and Durability of Book Papers, continued.

DENBERG, H. M. Inferior paper endangering the permanence of the printed page, *cont'd.*

per magazine, Gardenvale, 1925, v. (p. 985.) † *VMPA*

Paper of inferior lasting qualities is attributed to the demands of modern speed production. Wood-pulp paper is heavily indicted. Emphasizes the necessity of a permanent paper for printing trade statistics, legal records, public documents, etc.

From the *New York Times* book review section, August 2, 1925, p. 2.

LIVER, W. E.

Composition for hardening and preserving paper. (U. S. patent no. 37960, 1925.)

Arrowroot is prepared with four times its weight of water and mixed with swelled gelatin and a small proportion of evaporated milk. Abstract in *Chem. abst.*, 1925, v. 19, p. 2131-2.

ALL, GÖSTA.

Permanence of paper. (Paper trade journal, New York, 1926, v. 82, p. 52-53.) †† *VMA*

Work carried out at the Swedish Government Testing Institute. A large number of samples were exposed to sunlight and a temperature of 100° for various periods. This exposure is considered to have the same qualitative effect as aging. After exposure the fold-endurance and copper number were determined, the former being considered a sensitive index for physical deterioration and the latter for chemical deterioration. It is concluded that papers made from bleached sulfite are less permanent than those from rags. Apparently no marked distinctions exist between bleached cotton, bleached cotton and unbleached cotton. Sizing probably causes a reduction of permanence as compared with unsized paper.

Published in further detail in *Svensk papperstidning*, n:s 10-14, 16-18, 1925, and *Meddelande från Statens Provingsanstalt*, Stockholm, n:r 28.

"THE TIMES" to print copies on durable rag paper. (New York Times, Dec. 5, 1926.) * *A*

It will be the first time THE TIMES has been printed on rag paper since the Civil War. It also represents, it is believed, the first instance in which any newspaper has printed an edition on all-rag paper since the inferior but more economical wood-fibre newsprint universally took its place, beginning in the '70s and '80s. American journalism from the '70s and

'80s up to to-day appears certain to become eventually a blank. For example, the bulk of even the 1914-1918 newspaper accounts of the World War has already yellowed and aged so badly in the files that complete disintegration and disappearance are only a question of a few years more. . . Journals and gazettes of the Revolutionary War period, printed on good rag paper 150 years ago, however, are in shape to be consultable, and evidently will remain so for years to come. . . A book dated 1480 when inspected last week, was observed to have preserved all its medieval charm and proved that a printed cotton page could remain not only clear and unblemished up to and beyond 500 years, but beautiful as well.

"To comprehend what happens to paper made of wood fibre to make it die comparatively early and what constitutes the superiority of rag paper, one needs an understanding that the former paper is nothing but a mechanical mixture of fibres, reduced from the raw wood, either mechanically by grinding or chemically by dissolving the fibres apart.

"In either event the wood-pulp fibres inevitably retain most of the original impurity, in a paper-making sense, of the raw wood. These impurities are turpentine, resins, gums or sap. These nourishing 'fats' remaining in ground-wood constitute its weakness. It is with these that light and air play havoc when the file of such a newspaper undergoes oxidation. Chemical wood-pulp paper fares better, experts say, because the chemical treatment produces a certain embalming. But when the 'fatty' condition of ground-wood paper deteriorates, as described, the atomic cell of such a paper, while retaining temporarily its original form, is but a shell of its former self—dry and lifeless. The result is that ground-wood, or mechanical, pulp newsprint speedily loses its nature. It becomes brittle and discolored as the atmosphere 'bleeds' or renders it of its fats. . .

"Rag fibres, properly treated, approach very closely to the pure cellulose state, whereas wood fibres, no matter how carefully prepared, contain many impurities, which disintegrate rapidly. If the refining process is carried far enough to overcome or remove these impurities, the fibres themselves break down and become worthless. Not so, however, with rag fibres. These start off in a nearly pure state. The bleaching removes the coloring matter in the rags, and the gentle cooking and washing process removes the bleach or any other impurities which may exist, so that the resulting fibres are very close to chemically pure cellulose, the basis of the life of paper."

EDITORIAL on New York Times rag paper edition. (New York Times, Jan. 1, 1927, p. 12, column 3.) * *A*

MACNAUGHTON, W. A.

Modern wood pulp papers show increasing durability. (New York Times,

Preservation and Durability of Book Papers, continued.

MACNAUGHTON, W. A. Modern wood pulp papers... *continued.*

April 10, 1927, section 9, p. 21, column 4.) * *A*

A letter to the editor. Maintains that the durability or permanence of wood fibers can be made to equal that of rag fibers. The increased bleaching treatments to which rags are submitted during their history and improvements in the methods of refining wood pulp have tended to lessen the difference in the durability of the two materials. Quotes Kirchner, Herzberg, Hall, Heuser, Hilbert, and Burgess.

MACNAUGHTON, W. G.

Fiber composition and paper durability. (Paper trade journal, New York, 1927, v. 84, no. 12, p. 47-48.)

† *VMA*

MULLER, FRANK.

All rags aren't in music. (Brooklyn Central, Sept. 16, 1927, p. 13-14.)

A reprint from the *Erie R. R. magazine*.

Refers to the action of the New York Times in printing a 100 per cent pure rag paper. A bound volume of the all-rag edition for one year is stated to cost \$170 as against \$12 by mail for the ordinary edition unbound. Comments that it is only a question of time when the newspaper records of the "wood pulp era" will become obliterated. Describes the methods by which rags are collected.

ARNOULD, E.

La fabrication des papiers de longue conservation et causes de leur altération. (Papier, Paris, v. 31, no. 4, April, 1928, p. 431-436.)

† *VMA*

BENTZEN, TH. C.

Permanence of paper. (Paper trade journal, New York, 1928, v. 86, no. 8, p. 147, 149.)

† *VMA*

FOX, C. J., AND L. HERBS.

Durability of paper. (World's paper trade review, London, 1928, v. 90, p. 1046, 1048.)

HOFFMAN, W. F.

Effect of residual acid on rate of deterioration of paper. (Paper trade journal, New York, 1928, v. 86, no. 9, p. 60.)

† *VMA*

INCOMBUSTIBLE paper. (Industrial and engineering chemistry, news edition, 1928, v. 6, Dec. 20, p. 3.) *VOA*

By means of a process which is the subject of a patent application, a Berlin chemist, Fritz Frank, has obtained paper which will not burn at temperatures up to 700° C, and which at the same time is an extremely poor conductor of heat. The production of this incombustible paper is said to involve a transformation of cellulose, without a perceptible alteration of the appearance of the paper after completion of the process. It is supposed that the paper will find application in the printing of valuable documents.

LEAGUE OF NATIONS. — COMMITTEE.

Preservation of manuscripts and printed books. (Library journal, New York, 1928, v. 53, p. 713-715, 710.)

* *HA*

Translation of documents submitted to the International Institute of Intellectual Cooperation at Geneva in August, 1928.

M. Holwech, a member of the technical subcommittee, states "altho completely in accord with the feeling that unbleached rags (linen or cotton) are the best primary materials for making paper of lasting quality, I think it necessary to say that paper so made would be so costly that it would have but very limited use."

Dr. Katzarof, rector of the University of Sofia, says that an investigation of various important Bulgarian archives has demonstrated a deplorable state of preservation. The policy of special editions on durable paper is favored. M. H. Lindenchrone, of Denmark, gives an historical account of experiences in that country with wood pulp and sulfite cellulose.

In the final resolutions and recommendations of the committee, a preference for paper from unbleached rags is declared, and the desirability of special rag paper editions of newspapers is emphasized. Where it is impracticable to run off special editions, copies intended for legal deposit may advisably be covered with Japanese tissue paper as has been done for ten years and more with certain newspapers in the United States. Finally it is recommended that a bulletin be published giving a resumé of all new efforts and developments in this field.

PEARSON, RALPH M.

An artist in the making of books. (Personality, Garden City, 1928, v. 1, no. 6, p. 34-40.)

An interview with Mr. Dard Hunter, who is engaged in the manufacture of hand-made paper. It is stated that in America paper was hand-made as early as 1698; the craft, however, died out about 1820 with the advent of paper-making machinery. End paper made by Hunter has a tensile strength of 125 lbs. as compared

Preservation and Durability of Book Papers, continued.

EARSON, RALPH M. An artist in the making of books, *continued.*

With 6 lbs. for newspaper and 48 lbs. for paper money. Hunter considers that his paper will be the only paper in existence 500 years from this date. States that most European hand-made papers are made from bleached rags and that after such chemical treatment the life of the resulting paper is markedly diminished. Places the cost of hand-made paper from white rags at approximately \$2.50 an end sheet. Machine-made paper cannot possibly be preserved as long as 200 years.

LANC, ALBERT.

Chimie et la presse. (Chimie et industrie, Paris, special no., April, 1928, 101-108.) *VOA*

SURAUD, A.

Le papier durable. (*Le Moniteur de la papeterie française*, Paris, 1929, v. 60, no. 5, March 1, 1929, p. 99-100.)

† *VBA* p.v.

ANDREWS, ARTHUR E.

Rags; being an explanation of why they are used in the making of paper. n.p. [192-?] illus. 4°. *VMP*

Points out that choice of paper should be based on two widely separate considerations. When durability or permanence are of importance, rag paper should be selected; when the material to be recorded is of only transient value, wood-pulp paper is suitable and because of its lower price is usually preferable. Sample sheets of the two paper types are included.

DETERIORATION OF BOOKBINDING LEATHERS

BEIGHTON, JOHN.

On the library, books, and binding, particularly with regard to their restoration and preservation. (*Royal Society of Arts, Journal*, London, 1858-59, v. 7, p. 209-215; discussion, p. 215-19.) *VA*

States that leather bindings appear to resist dampness better than extreme dryness. Heat and particularly heat from gas so affects leather that it becomes impoverished, as was the case in the library of the Athenaeum Club where, some years since, the calf and Russia bindings suffered severely. This action was so severe that they crumbled under the touch, the backs falling away, the boards alone hanging by the slips or rings on which the book is sewn and by which it is held to the boards. All the oily matter seemed as if dried out of the leather—a fault common in Russia and some modern calf-skins, and perhaps capable of being averted by the introduction of glycerine or some such matter.

At the Athenaeum Club Library Prof. Faraday is said to have introduced a gas-burner, with a chimney for conveying the deleterious fumes therefrom to the outer air; a plan which Beighton believed tended much to arrest decay.

Dr. Letheby has communicated by letter his experiences in regard to the subject under discussion. He points out that the sulfur in coal is oxidized to sulfuric acid upon combustion and with the ordinary sulfur content (about 20 grains per 100 cubic feet of gas) very appreciable quantities of sulfuric acid are discharged into the room. Mentions about eight libraries where integration of bindings has been very marked;

in all of these the action is attributed principally to the coal gas burned. This view is supported by the fact that deterioration is not very marked in the sides of the books, which are not exposed to the atmosphere, as is the case with the backs.

In the ensuing discussion Mr. Spencer Hall said that red-dyed Russia leather could not be depended on for permanence because of the materials used in its preparation. Morocco leather was considered the best adapted to withstand the effects of the combustion of gas, as well as of heated atmosphere and, as far as his own observation went, there was no binding to be relied upon or so cheap in the end as good morocco.

Mr. Wilson, in the same connection, pointed out that more oil was used in the preparation of morocco and suggested that this might have some protective action against the sulfurous or sulfuric acid.

Mr. Spencer Hall, although granting that the combustion products of gas had a detrimental effect on the bindings, proceeded to demonstrate that this was by no means the only destructive agent. The temperature in the Athenaeum Library was cited as being particularly high and also the use of such agents as oxalic acid in binding was cited.

Other causes suggested in the discussion were the action of light and of putrefactive fermentation in the binding adhesive.

BINDING. Injury from gas and heat. (*Library journal*, New York, 1876-77, v. 1, p. 124.) **HA*

Predominant opinion is that the action of heat is the cause for binding decay, rather than the action of gas. Excessive heat dries the oil and cracks the leathers.

Deterioration of Bookbinding Leathers, cont'd.

CHURCH, A. H.

Destruction of leather by gas.
(*Chemical news*, London, 1877, v. 36,
p. 179.) PKA

Is absolutely positive that the sulfuric acid in coal gas is the cause of bookbinding deterioration. Analysis of one disintegrated sample showed 6 per cent free sulfuric acid. Says deterioration is most rapid with books on the upper shelves of a library, where the heated products of combustion ascend, and where they are absorbed and condensed.

DAVIS, GEORGE E.

Destruction of leather by gas.
(*Chemical news*, London, 1877, v. 36,
p. 227-228.) PKA

Has analyzed bindings which had remained for about twenty years at a position near the ceiling of the room. Results in general confirm those by Prof. Church, *same volume*.

GIBBS, WOLCOTT.

The deterioration of bindings. (*Library journal*, New York, 1878, v. 3,
p. 229.) * HA

Has examined books in the Athenaeum, College and Astor Libraries. The analyses indicate that the decay was not due to the action of gas but most probably to some step in the tanning process. Conclusions are based on fact that no free acid is found in the decayed leathers.

NICHOLS, W. R.

On the deterioration of library bindings. (*Chemical news*, London, 1880,
v. 41, p. 64-66.) PKA

Qualitative and quantitative examinations showed that, in a general way, the more the leather was decayed the more marked was the acid taste and acid reaction on test-papers, and the larger was the amount of sulfuric acid to be found in the aqueous extract. The aqueous extracts of fresh leather were only slightly acid and contained only a minute amount of sulfuric acid in combination. Suggests, however, that the volumes on the higher shelves of a room are subjected to a higher temperature which in itself may cause the disintegration and that such disintegration may in turn be the cause for the absorption of the vapor of sulfuric acid rather than the absorption being the cause of the disintegration.

Also in *Library journal*, v. 4, p. 435-438 (1879). Read at the Saratoga meeting of the American Association for the Advancement of Science, 1879.

WOODWARD, C. J.

The action of gas on leather book bindings. A preliminary experimental enquiry. (*Library chronicle*, London, 1888, v. 5, p. 25-29.) * HA

Finds the leather exposed to the foul air of the fume chamber in which gas has been burning for 1,000 hours is seriously deteriorated, for the extent to which it will stretch is reduced from 10 per cent to 5 per cent, while the strain which it will bear is reduced in the ratio of about 35 to 17.

A check determination made under similar conditions but without the presence of burned gas did not show as marked deterioration of the leather.

DAVENPORT, CYRIL.

Leather as used in bookbinding. (*The Library*, London, 1898, v. 10, p. 15-19.) * HA

Discusses various leathers as regards their suitability for bookbinding. Says that damp is the great enemy of leather bindings, and the strongest moroccoes speedily powder away under its influence. Too much dryness is also bad, especially for calf. Bookbindings keep better if enclosed in cases, but it is very necessary to have proper ventilation and to see that the cases are occasionally opened and left open for some time.

COCKERELL, DOUGLAS.

Leather for bookbinding. (*Society of Arts, Journal*, London, 1899-1900, v. 48, p. 401-411.) VA

"It is seldom that a large library is examined without finding that the leather of a considerable proportion of the bookbindings made during the last 50 years has perished. As the damage observed in leather bindings is not confined to isolated cases, or to isolated libraries, it cannot be due to accident. Dampness is certainly injurious to leather, as is also excessive dryness, and it is found that those books which have been exposed to excessive heat first give evidence of damage. Since the sulphurous acid given off by the burning of coal gas becomes oxidised to sulphuric acid, it was surmised that gas was the sole cause of the destruction of so many bookbindings, but books kept in libraries where light is installed showed an equal amount of decay. Thus, at the British Museum, where neither gas nor electric light is used, the books are in an equally bad condition.

"In the manufacture of leather it is customary to sour skins, previous to dyeing, in a weak bath of vitriol. This acidity is often not completely removed previous to the goods entering the dye-bath; even in the dye-bath itself sulfuric acid is added to overcome the hardness of the water and to bring out the full shade of the dye. This careless use of sulfuric acid is thought both by

deterioration of Bookbinding Leathers, cont'd.

COCKERELL, DOUGLAS. Leather for bookbinding, continued.

Cockerell and Parker to be partly the cause of the premature decay of leather used for binding books."

A number of other suppositions are advanced in the discussion which follows.

Abstract in *Jour. Soc. Chem. Ind.*, 1900, v. 19, 360.

STANDAGE, H. C.

Leather for bookbinding. (*Society of Arts, Journal*, London, 1899-1900, 48, p. 458-459.) VA

In the discussion following the recent article Cockerell on this subject, a criticism was made by Gordon-Parker as to a recipe for coloring and coloring leather, which this author (Standage) had published. The author defends this recipe here and maintains that brief immersion in caustic soda solution does not injure the leather.

LEATHER for bookbinding. (Library Association record, London, 1900, v. p. 250-253.) *HA

Editorial comment on recent report by Cockerell. Points out that although the combustion of coal gas may accelerate the disintegration of leather it cannot be the sole cause. The same disintegration is noted in libraries where no coal gas is burned. The use of sulfuric acid in the manufacturing process is condemned.

ROCTER, H. R.

On leather dyeing. (*Society of Chemical Industry, London, Journal*, 1900, v. 19, p. 23-25.) VOA

"Weak acids, such as acetic or lactic, or acids, such as sodium bisulphate, are generally preferred to sulfuric acid as an addition to the dyebath; and if the latter is used, great care is desirable in its complete removal. There is no doubt that the rapid decay of leather bookbindings and upholstery is largely due to the careless use of sulfuric acid in 'clearing' and 'dyeing' the leather; and even if it is fully removed, it has saturated all bases such as lime, which are naturally present in leathers in combination with weak acids, and which would otherwise act as some protection from the sulfuric acid evolved in burning coal gas."

REPORT of the Committee on Leather for Bookbinding. Society for the Encouragement of Arts, Manufactures & Commerce. (*Society of Arts, Journal*,

London, 1900-01, v. 49, p. 621-638.)

VA

The Committee was formed in February, 1900. Two sub-committees were elected, the first to visit important libraries, the second to investigate the cause of decay and deterioration from the scientific standpoint.

The first sub-committee visited a large number of libraries, including that of the British Museum, the Bodleian Library, the University Library, Cambridge; the libraries of the Athenæum Club, Patent Office, and Chemical Society; also some valuable private libraries. They ascertained that the complaints of premature decay of modern bookbinding leather were justified by facts, and that books bound during the last 80 or 100 years showed far greater evidence of deterioration than those of an earlier date. Many recent bindings showed evidence of decay after so short a period as ten or even five years. They concluded that while leather of all periods shows some signs of decay, the deterioration becomes more general on books bound after 1830, and that books bound after 1860 appear to have deteriorated. The deterioration of calf bindings at the latter end of the 19th century may be attributed as much to the excessive thinness as to the poor quality of the material.

The Committee found that in libraries in which there was no artificial light used, and where the ventilation was good, the bindings were generally in a better state than elsewhere. Where gas is used, the bindings are in the worst state, especially on the higher shelves. Daylight, and still more, direct sunlight have a disintegrating effect upon leather.

Of the old leathers (15th and 16th centuries), white pig skin, probably alum-tanned, is the most durable, but its excessive hardness and want of flexibility render this leather unsuitable for most modern work. Old brown calf has lasted well, but loses its flexibility and becomes stiff and brittle when exposed to light and air. Some 15th and 16th century sheep skin bindings had remained soft and flexible. Early specimens of red morocco, from the 16th to the end of the 18th century, were found in good condition, and of all the leathers noticed, this seemed to be the least affected by the various conditions which it had been subjected to. Morocco bindings earlier than 1860 were generally found to be in good condition, but morocco after that date seemed to be much less reliable, and in many cases had become utterly rotten. Since about 1830 hardly any really sound calf seems to have been used. Sheep skin bindings, dating from the early part of the century, were many of them found still to be in good condition, but since the year 1860 or thereabouts, real sheep skin is scarcely to be found. Sheep skins were grained in imitation of other leathers, and these imitation grained leathers are generally found to be in worse condition than any of the other bindings, except, perhaps, some of the very thin calfskin.

Modern leathers dyed with the aid of sulphuric acid are all to be condemned. In nearly every

Deterioration of Bookbinding Leathers, cont'd.

REPORT of the Committee on Leather for Bookbinding, *continued*.

case Russia leather was found to have become rotten, at least in bindings of the last 50 years.

The work of the second sub-committee, which was composed of chemists specially conversant with the treatment of leather, was directed specially to the elucidation of the following points: An investigation of the nature of the decay of leather used for bookbinding, an examination of the causes of this decay, a research into the best methods of preparing leather for bookbinding, and a consideration of the points required to be dealt with in the preservation of books.

The sub-committee made a number of tests and analyses of samples of decayed leather bookbindings, as well as of leathers used for binding, and found that the most prevalent decay was what they termed a "red decay," and they think this may be differentiated into "old" and "new;" the old red decay being noticeable up till about 1830 and the "new" since that date. In the old decay, the leather becomes hard and brittle, the surface not being easily abraded by friction. The older form is specially noticeable in calf-bound books tanned with oak bark. The new form affects nearly all leathers, and in extreme cases seems absolutely to destroy the fibres.

Another form of deterioration, more noticeable in the newer books, renders the grain of the leather liable to peel off when exposed to the slightest friction. In nearly all samples of Russia leather a very violent form of red decay was noticed. In many cases the leather was found to be absolutely rotten in all parts exposed to light and air.

An extensive series of experiments was carried out, with a view of determining the causes of the decay of bindings. The sub-committee find that this is caused both by mechanical and chemical influences. Of the latter, some are due to mistakes of the leather manufacturer and the bookbinder, others to want of ventilation and to proper heating and lighting of libraries. In some cases inferior leathers are finished (by methods in themselves injurious) so as to imitate the better class leathers, but, in the main, the injury for which the manufacturer and bookbinder are responsible must be attributed rather to ignorance of the effect of the means employed to give the leather the outward qualities required for binding, than to an intentional production of an inferior article.

The sub-committee give detailed instructions as to the preparation of leathers suitable for binding, and deals in detail with the tanning, dyeing and finishing, and with the preservation of books.

The following general conclusions are the results of a long series of experimental work and research. It is shown conclusively that the catechol tannins, which include turwahr, quebracho, hemlock, larch barks, and gambier, are unsuit-

able for bookbinding leather where durability is required, and that sumach yields a much more permanent leather, whilst myrobalans occupies an intermediate place, but nearly approaching sumach. Cassia bark, which is the tanning material employed for East India sheep and goat skins, has proved absolutely unreliable. Sumach leathers in some cases showed darkening of colour, but this was probably due to the adulteration of the sumach used with pistacia, the tannin of which is closely allied to that of cassia.

Of all the influences to which books are exposed in libraries, gas fumes, no doubt because of the sulphuric and sulphurous acids which they contain, are shown to be the most injurious, but light, and especially direct sunlight, and air, are shown to possess deleterious influences which had scarcely been suspected previously, and the importance of moderate temperature and thorough ventilation of libraries cannot be too much insisted upon.

Substitutes for leather in bookbinding were also examined, but found not to be so durable as properly prepared leather, although they last longer than Persians or improperly prepared leather.

The committee recommend that only sumach should be used in the tanning of leather for high class work; that calf or goat skins are to be preferred. The skins used must be in good condition, and preferably dry or wet salted skins rather than dry-salted skins. No putrid soaks or violent mechanical treatment should be used for softening. Old limes, smelling strongly of ammonia, and containing large quantities of bacteriological products, must be avoided. A great deal of damage is frequently caused by want of care in the puering and bating, and the committee speak highly of erodin as a substitute for the ordinary dung bate. A light tannage is recommended. Excessive shaving and tight setting-out is condemned.

The common custom of clearing and bleaching the skins by means of sulphuric acid is found to be one of the most frequent causes of decay; and the addition of sulphuric acid to the dye-bath in the dyeing is likewise condemned, and most vegetable acids are recommended in its place.

The use of nitric acid as a preparation for glazing was found to be destructive, and dye-glazing was condemned. The bookbinding custom of washing up the leather with oxalic acid was found to be detrimental, and the custom of sprinkling the leather with ferrous sulphate for the production of "sprinkled" calf, or "tree" calf, was most strongly condemned. The stretching of leather tightly over books in a wet condition has a bad effect.

In the preservation of books in libraries, the committee recommend tinted glasses which will exclude the strong actinic rays of light. J. G. P.

Abstract in *Jour. Soc. Chem. Ind.*, 1901, 20, p. 819. Article reprinted by William Trounce, London, 1901.

eterioration of Bookbinding Leathers, cont'd.

BOOKBINDER'S leathers. (Hide and leather, Chicago, Jan. 19, 1901, p. 26-27.)
 †† VMA

"Vellum proper, manufactured from calf, sheep, or lambskins, makes an elegant white binding, but has the objection that it is easily spoiled by use and dust, it also curls up and warps in a warm climate or a heated library.

"Sheepskin makes too soft a leather to give satisfaction as a binding and under the influence of gas fumes it crumbles and eventually turns to powder; in the form of half roan or buck, coloured sheep bindings present a handsome appearance on the book shelf, and if books are not in frequent use, one is sometimes justified in adopting this form of binding, it being far less expensive than morocco. Pigskin, though extremely hard and durable, is found to warp with age.

"Calf leather, as a binding, has always been a great favourite, though it is the most unserviceable of all kinds of leather. On account of its brittleness, books bound in this material are always breaking at the hinges, whilst on the exceedingly smooth surface of the leather, every scratch is instantly observable. Out of every 100 calf-bound volumes in any well-used library, there will not remain 10 which have not had to be rebound or repaired at the end of 20 or 30 years; heavy volumes bound in calf will break by their own weight without being used. The objections to Russia leather, once a favorite binding, are its stiffness and want of elasticity, the tendency of gas to desiccate and lose all its tenacity and, finally, its heavy cost.

"Morocco leather makes a most suitable binding possessing both toughness and durability combined with softness and flexibility; this leather possesses a very tenacious fibre and the author states that he has never found a real morocco binding broken at the hinges. The three greatest sources of danger to books are too much heat, excessive moisture, and the fumes from alcohol-gas.

"The use of buckram as a binding material has been almost entirely abandoned by American binders; morocco cloth has no advantage over plain muslin or book cloth; 'leatherette' possesses neither elegance, permanence, nor cheapness; 'artine' or 'fibre' are made of paper, tear easily, and are unfit for use as bindings. Bookbinders made of vellum on account of their being more durable than leather, can be recommended."

Abstract in *Jour. Soc. Chem. Ind.*, 1901, v. 20, 264.

DOCKEREILL, DOUGLAS.

Bookbinding, and the care of books; text-book for bookbinders and librarians. London: John Hogg, 1901. 342 pp. 12°.

* ITR
 Summarizes report of the Committee on leather.

RYE, W. L.

Leather for bookbinding. (Library Association record, London, 1901, v. 3, p. 532-534.) * HA

Summary of the findings of the committee appointed to investigate the causes of the decay of bookbinding leather.

WHEATLEY, HENRY BENJAMIN.

Leather for bookbinding. (The Library, London, 1901, new series, v. 2, p. 311-320.) * HA

Comment on report of the committee appointed to encourage the production of sound and durable leather for bookbinding. Quotes Viscount Cobham, chairman of the committee, "the better adapted a room is for human occupation the better for the books it contains." The reference of course is to the burning of coal gas, excessive heat, etc.

PARKER, J. GORDON.

Leather for bookbinding. (Society of Arts, Journal, London, 1901-02, v. 50, p. 25-32.) VA

The author describes in detail the experiments and investigations which were carried out by the second subcommittee, and on which this committee based its recommendations, which were published in the Society of Arts' Report on Leather for Bookbinding. (This Journal, 1901, 819.)

To find out whether any special tanning material had any advantage or disadvantage in the production of leather, calf, goat, and sheep skin were tanned, one of each skin, in each of the following tanning materials: Pure sumach, *pistacia lentiscus*, tamarisk, oak bark, myrobalans, quebracho, mimosa bark, gambier, larch bark, chestnut extract, oakwood extract, turwar bark, and hemlock extract. One-half of each skin was removed from the tanning liquor as soon as it was lightly tanned, the other half being left in the liquor for a longer period, the liquors being also made stronger. The leathers so produced, were rinsed through water to remove superfluous tan, allowed to drip, lightly oiled on the grain surface, and dried in the usual manner. One piece of each was subjected to the following tests for 30 days:

(1) Direct sunlight; (2) Gas light; (3) The light of an incandescent gas burner; (4) A 16 candle-power incandescent electric lamp; (5) Fumes of burnt gas; (6) Action of moist and dry air alternately; (7) An atmosphere of carbon dioxide; (8) Action of direct sunlight, the leather being protected from the air by a sheet of glass.

The experiments with the fifth set of leathers, which were subjected to the fumes of burnt gas, were carried out in a chamber 8 ft. high and 6 ft. square, the temperature of which was not

*Deterioration of Bookbinding Leathers, cont'd.*PARKER, J. G. Leather for bookbinding, *cont'd.*

allowed to exceed 90° F., a temperature usual at the upper shelves of several libraries. The leathers after this treatment were compared, and it was found that those tanned with certain tanning materials were less affected than those tanned with others; that the fumes of burnt gas appeared to act on all leathers more than any other agent. It was found that artificial light had only a slight effect upon the leather, providing the latter was protected from the products of combustion, also that direct sunlight and air appeared to have a very strong disintegrating action upon most of the samples, but when the leather was protected by a covering of glass, the action was less intense. Moist and dry air appeared to have no special deteriorating action. The same thing was noticed with regard to the set exposed to carbon dioxide. The electric incandescent light appeared to have less effect than ordinary gaslight or the incandescent gas burner. In each case the leathers tanned with sumach, were the least affected, followed in regular rotation by myrobalans, chestnut extract, oakwood extract, oak bark, gambier, larch bark, hemlock, quebracho, pistacia, and tamarisk. The worst was the leather tanned with turwar bark. The portions of the leather which had been more heavily tanned were more affected than those which had been lightly tanned.

These results showed that the tannins which belong to the pyrogallol class of tanning materials were the least affected, while those of the catechol series became very red in colour and hard in texture, the fibres appeared to be disintegrated, and in the worst cases the fibres of the leather appeared to come off in the form of powder when rubbed. The tannins of the catechol series appear to part readily with water when exposed to the action of light, heat, or acids, and are converted into red, resinoid substances which appear to thoroughly disintegrate the fibres of the leather, causing it to become hard and lose all strength.

It was found that East India tanned goods tanned with turwar bark were most sensitive to either gas fumes, light, or heat. These goods are usually re-dressed in this country, they are stripped by washing in weak alkalis, brightened in colour by washing in water containing sulphuric acid, and afterwards re-tanned in sumach. This treatment makes the leather even more sensitive, and samples of such leather exposed to gas fumes and direct sunlight for 60 days were quite rotten at the end of the period.

It was found that the oak-bark tanned calf leather stood the tests described above very well, provided the fibres were not overloaded with tannin. The decay of modern oak bark tanned calf was found to be due partly to the leather being too heavily tanned, and, secondly, to the trade custom of brightening the colour and removing the stains by washing in sulphuric acid.

The dyeing, seasoning, and glazing of the

leather, provided no sulphuric acid was used; the dye bath to develop the colour, did not impair the life of the leather.

Further experiments showed that calf and sheep skins appeared to be the weakest, while goat, seal, and pig skins produced the strongest leathers.

The use of sulphuric acid, either as a brightening agent or in the dye-bath, was shown to be universal, as out of 38 samples of commercial moroccos, 36 were found to contain free sulphuric acid; 12 samples of skivers out of 13 examined, contained sulphuric acid; 32 samples of calf leathers were tested, 27 of which contained free acid; 18 Persian goat and 23 Persian sheep were also tested, and in each case free sulphuric acid was found. This was also the case with six samples of pig skin. These were all of English manufacture, some obtained direct from the manufacturers, others from leather merchants and bookbinders. French and German leathers were also tested, and were found to contain even a higher proportion of acid, one sample containing as much as 1.3 per cent.

As it is always the custom in tanyards to wash the skin well in water after the treatment with acid, the following test was undertaken to ascertain the amount of washing necessary to remove the acid. Several skins were treated with known quantities of sulphuric acid, and washed at varying periods with running water, and it was found practically impossible to remove the whole of the acid by rinsing or washing in the ordinary manner. The acid, however, was found to be easily neutralised by washing the skin in water containing either potassium or sodium lactate or acetate.

It was found that skins which came from abroad, preserved in salt, were, when tanned, weaker in texture than either dried or fresh skins. Sheep skins which come from New Zealand and Australia in what is known as a "pickled" condition were found to be weak and unsuited for book-binding work. A lot of leather examined microscopically was found to be damaged by over-puering. This was especially marked in many samples of pig skin. Most commercial leather was found to be too heavily tanned; that is to say, besides the tannin which was combined with the fibres, a large amount of uncombined tannin was adhering to and contained in the fibres. This uncombined tannin appeared to oxidise, and to cause the disintegration and rotting of the fibres.

Several substitutes for leather, consisting mostly of cloth or cotton foundations covered over with some material of a waterproof nature, were also subjected to a similar series of tests to those described for the leather, and although they withstood the action of light and heat, they were more easily affected by the fumes of burnt gas than the poorest qualities of leather, and in dry atmospheres they became hard and brittle.

Oxalic acid used for brightening leather on the backs of books made the leather hard and brittle, and caused it to decay.

The use of sulphuric acid to plump the leather

deterioration of Bookbinding Leathers, cont'd.

PARKER, J. G. Leather for bookbinding, *cont'd.* Tanning had the same effect as when used as rightening agent.

Cheap brands of sumach were found to be altered with the leaves of *pistacia lentiscus* and *tamarix africana*. Both of these materials belong to the catechol series, and skins tanned with sumach containing either of these adulterants produce leather which is unsuited for bookbinding work.

The author was struck with the number of disguises under which the ordinary skin masqueraded. Sheep skin lends itself to being marked up to imitate morocco, calf skin, crocodile, and alligator leathers, and in many cases fakes were found to be bound with these imitations.

The author advised bookbinders and librarians to use leathers which had been tanned with the sumach, and to insist that in the manufacture or dyeing of these leathers, no sulphuric acid should be used at any stage. He absolutely condemned the use of Persian morocco or Persian sheep skin, as these skins begin to decay less than ten years. Buyers of leathers should demand high finishes, bold grains, and other characteristics in the leather, such as could only be obtained at the expense of its strength and durability. — J. G. P.

Abstract in *Jour. Soc. Chem. Ind.*, 1902, v. 1, p. 128.

HULME, E. W., AND OTHERS.

Leather for libraries. London: Published for the Sound Leather Committee of the Library Association by The Library Supply Co., 1905. 57 p. 8°.

* *ITR*

Reviewed in the *Library journal*, December, 1905.

Contents: Ch. 1. History of sumach tanning in England. Degradation of the manufacture of leather, and history of the reform movement, E. W. Hulme. Ch. 2. The causes of decay of bookbinding leathers, by J. Gordon Parker. Ch. 3. Provenance, characteristics, and values of modern bookbinding leathers, by A. Seymour-Jones. Ch. 4. The repairing and binding of books for public libraries, by Cyril Davenport. Ch. 5. Specification for the fittings of a small library, by F. J. Williamson.

Hulme considers that the first step in the regeneration of the quality of leather manufactured consisted in the introduction of sulphuric acid in 1768 in place of the usual drenches, containing bran, rye or other cereals. With the introduction of aniline dyestuffs about 1870, sulphuric acid came into universal use as a means of softening the skin before entering the dyebath. The wide range of colors offered by the new dyestuffs fascinated the public, which accepted the new leathers without question as to their

durability. Librarians began to insist upon accuracy and uniformity of shade regardless of the methods by which these results were obtained.

Parker says that bindings began to show signs of rapid deterioration about 1850. This deterioration increased on bindings subsequent to 1870 and probably 75 percent of the leather used for bookbinding during the previous 20 years either has already decayed or will do so within a comparatively short time. Lists and discusses eight of the principal factors in the deterioration of modern leather: no. 1. The introduction of tanning materials other than oak and sumach, stronger in tanning, and more rapid in their action. Many of these tanning materials are unstable, and the leather produced disintegrates on exposure to light and air; no. 2. The use of dried and cured skins of variable soundness imported from abroad; no. 3. The use of infusions of acids and other bleaching agents to produce bright and even shades of color; no. 4. The use of sulfuric or other mineral acids for the purpose of developing the depth of color during the process of dyeing; no. 5. The shaving and splitting of skin for producing an even substance; no. 6. Printing and embossing grains upon leather, together with other methods of finishing now in common use; no. 7. The stripping, scouring, and re-tanning of East India leathers (Persians); no. 8. The removal of the natural grease or nourishment of the skin.

ROYAL SOCIETY OF ARTS, LONDON.

Report of the committee on leather for bookbinding. Edited for the Society of Arts and the Company of Leathersellers by the Rt. Hon. Viscount Cobham and Sir Henry Trueman Wood. London: Published for the Society of Arts by George Bell and Sons, 1905. 120 p. illus. 4°.

* *ITR*

Amplification of the report in 1901, with illustrations.

SEYMOUR-JONES, ALFRED.

On the glazing of libraries, with reference to the chemical action of light on leather. (Library Association record, London, 1906, v. 8, p. 641-646.)

* *HA*

Something of a supplement to the committee report of the Society of Arts (1905).

The action of light, especially direct sunlight, is very detrimental to leather, varying in degree according to the tannin employed in tanning. Any librarian can meet this difficulty, provided he will act upon the advice given in the report (1905) to glaze the library windows with suit-

Deterioration of Bookbinding Leathers, cont'd.

SEYMOUR-JONES, ALFRED. On the glazing of libraries, *continued*.

able tinted glass or glasses. He can select his glass or glasses for correct tints according to the following test. Let him send to the glass-makers for pieces of glass, each one-and-a-half inches by two inches, representing all the colors they produce. Number each piece with a reference number in black ink. Arrange all the glasses, side by side, like a chess board, in a photo printing frame, in which a sheet of plain glass has been inserted as a bedplate, superimpose a sheet of ordinary silver print photographic paper, and close up the frame. Expose to direct sunlight (or daylight). The results will show clearly the types of glass most suitable.

EITNER, W.

Ueber die Frage der Qualitätsbeeinflussung des Leders durch einen Gehalt an Schwefelsäure. (Der Gerber, Teplice-Schönau, Czecho-Slovakia, 1907, v. 33, p. 267-269, 281-283, 296-299, 309-311.) †† VMA

In some cases finds that moderate amounts of free sulfuric acid are not particularly detrimental. A sample of hemlock leather containing 0.42 per cent of free sulfuric acid was preserved for 30 years and a sample containing 0.64 per cent was preserved for 12 years without noticeable deterioration.

Abstract in *Jour. Soc. Chem. Ind.*, 1907, v. 26, p. 1245.

LAMB, M. C.

The deterioration of leather under the influence of gas fumes. (Society of Dyers and Colourists, Journal, Bradford, 1908, v. 24, p. 160-166.) † VLG

A series of experiments on the influence of the tannage, dyeing, and finishing, on the decay of modern bookbinding leathers. The conclusions of the committee of the Society of Arts are further confirmed. Algarobilla, chestnut extract, and myrobalans are stated to be the most suitable tanning materials for such leathers, next to sumach. Chrome tannages are also suggested for the production of non-decaying leathers. The influence of various "finishes" on the permanence of these leathers was also investigated, shellac, albumin, formaldehyde-gelatin, and linseed finishes being used. The results show that the most resistant to deleterious influences is the shellac finish, and the next best, egg-albumin. Japanned leathers also withstand well the action of heat and gas fumes.

Reprinted in *Collegium*, 1908, p. 400-412, 417-418; abstracted in *Jour. Soc. Chem. Ind.*, 1908, v. 27, p. 820, and in *Jour. Am. Leather Chem. Assoc.*, 1908, v. 3, p. 124.

NIERENSTEIN, M.

Book-binding leather from Nigéri (Collegium, Darmstadt, 1908, Nr. 30, p. 164, 167-169.) VM

The skin under examination was a goat-skin apparently incompletely tanned. The author states that catechol tannins should not be used in book-binding leathers, "red decay" or "rot" usually being the result.

Abstract in *Jour. Soc. Chem. Ind.*, 1908, 27, p. 414.

LITTLE, ARTHUR DEHON.

The effect of illuminating gas on leather. (American Leather Chemist Association, Journal, New York, 1907, v. 4, p. 138-140.) VM

The effects caused by the action of sulfur and artificial gas are considered to be negligible. It is pointed out that in the process of "chroming" there is, under some circumstances, deposition of sulfur in the leather when hypodermic sulfite is decomposed with HCl. Conditions favorable to oxidation of this sulfur would consequently be those which effected most deterioration.

LOUBIER, JEAN, AND HANS PAALZOV.

Die Beschaffenheit des heutigen Leders und anderer Einbandstoffe: ihr schneller Verfall, dessen Ursachen und Massregeln zum Schutze dagegen. (Zentralblatt für Bibliothekswesen, Leipzig, 1910, Jahrg. 27, p. 322-349.) * H

This paper by the custodians of the library of the Kunstgewerbe Museum in Berlin is based upon the reports of the special committee on bookbinding leather of the London Society of Arts, 1901-05 supplemented by their own experiences. Systematic inquiry has shown that early bindings are durable, but that there has been a falling off since 1830 and those made since 1860 have shown the least endurance. The "red decay," whereby the leather becomes brittle and brittle, is the most striking; in its form prevalent since 1860 the leather actually rots to a powder. The decay is independent of the amount of use and is most marked in well-lighted and heated rooms. Since the ancient leathers have withstood decay, exposed to the same conditions, the essential cause must lie in the manufacture of the leather itself. Six of the most common types of book leathers are described. Bindings are oiled with vaseline and degreas.

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1911, v. 6, p. 102.

Deterioration of Bookbinding Leathers, cont'd.

CHIVERS, CEDRIC.

The relative value of leathers and other binding materials. illus. (American Library Association, Bulletin, Chicago, 1911, v. 5, p. 164-179.) *HA

Summary of a lecture delivered before the American Library Association, at Pasadena, Cal., May 23, 1911, supplemented by further facts and illustrations included in a lecture given to the British Library Association, at Perth, N. B., Sept. 5, 1911.

Various cloths, linings and leathers are tested for breaking strength and tearing strain. With ordinary "edition cloth" a half-inch strip suffers a strain of 25 lbs. in the warp and 10 lbs. in the woof. Suggests that the cloth be used so that the warp run across the book rather than up and down the cover. The tearing strain of unpared Niger leather was .99 lbs. per 1000th inch of thickness, the corresponding tearing strains of several other leathers were as follows: Niger leather (goat) .83; Niger leather (sheep) .96; Niger leather (pared) .75; imitation niger .30; Levant morocco .40; pigskin .58; cowhide .21; calf .21; vellum 1.18. Considers that the low strength ratio of Levant morocco is due to the loss of its natural, nourishing fat prior to tan. In an added note it is shown that, under extreme temperatures, dryness and moisture, the deterioration of Niger leather is considerably less than that of other leathers.

Also in *Library Association record*, 1911, v. 5, p. 415-430, 508-509.

LOUBIER, JEAN, AND HANS PAALZOW.

Einbandleder. (Zentralblatt für Bibliothekswesen, Leipzig, 1911, Jahrg. 28, p. 390-401.) *HA

Report of the commission.

BESCHLÜSSE der Lederkommission des Vereins deutsche Bibliothekare."

Der Gerber, Teplitz-Schönau, Czecho-Slovakia, 1911, v. 37, p. 143-144.)

†† VMA

Some of the conclusions and regulations of the recent commission appointed to investigate the nature of modern bookbinding leathers are as follows: — I. *General*. — (a) Suitable leathers for bookbinding purposes may be made from goat-, pig-, calf-, cow-, and sheepskins. (b) The use of mineral acids in the manufacture of the leather is dangerous and should be avoided. II. *Tanning*. — The suitable and harmless tanning materials for this purpose are pure sumach, pure oak-bark and gall nuts. Other materials, such as pine bark, birch bark, chestnut wood, quebracho, cassis, myrobalans are to be condemned. II. *Finishing*. — (a) The leather must not be made too thin, and split sheepskins are to be excluded. (b) Leathers with artificial grain are

to be avoided. (c) Bleaching of leather is to be avoided as no harmless bleaching agent is known. (d) It is possible to produce fast light colors without the use of sulfuric acid or other mineral acids. (e) Leather dyed through has no advantage over leather dyed only on the surface. IV. *Designation*. — In order to prevent confusion, arbitrary and fancy names are to be avoided and the nature of the skin should be given, i.e., whether it is goat, pig, sheep or calf leather. V. *Guarantee*. — Leathers fulfilling the necessary conditions should be stamped, "Prepared according to the regulations of the Commission of the Society of German Librarians."

Abstract in *Jour. Soc. Chem. Ind.*, 1911, v. 30, p. 818.

Also published in *Allgemeiner Anzeiger für Buchbindereien*, Stuttgart; *Journal für Buchbinder*, Leipzig; *Berliner Berichte über Leder, Häute, Felle*; and in *Collegium*, Darmstadt.

VORSCHRIFTEN für Bibliothekseinbände, beschlossen vom Verein deutscher Bibliothekare am 8. Juni 1911. (Zentralblatt für Bibliothekswesen, Leipzig, 1911, Jahrg. 28, p. 350-362.)

*HA

LEATHER for bookbinding. (Shoe and leather reporter, Boston, Nov. 17, 1912.) 3 - †† VMA

It is stated that among the many tannages that are suitable for shoe and fancy leather there are only two or three that can be used in the preparation of bookbinding leather. Pure sumac and pure oak bark are the most suitable and least injurious to the finished leather. The use of acids in any stage of the process is dangerous as it tends to weaken the fibers. If the leather is to be colored, only those dyes can be used which do not require acid for their development. Aniline dyes can be used but they must be used without sulfuric acid.

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1912, v. 7, p. 687.

EDITORIAL comment. Bookbinding leather decay. (The Leather world, London, 1917, v. 9, p. 474.) † VMA

Refers to recent report by Taylor as to the causes of decay. Taylor has concluded that light-waves seem to be responsible for a great deal of the destruction taking place in our leathers. The editor says that one large producer of binding leather has found that light has a very destructive effect on certain classes of leather, this being especially pronounced in leather tanned with the catechol class of materials. As East India skins are tanned with the catechol tannins and are largely used in binding books, it is not to be wondered at that the committee of the Society of Arts some time ago stipulated that sumach-tanned leathers should be used for binding the best class of books.

Deterioration of Bookbinding Leathers, cont'd.

SEYMOUR-JONES, ALFRED.

Bookbinding leather decay. (*The Leather world*, London, 1917, v. 9, p. 506-507.) † *VMA*

Comment on recent article by Taylor in which the action of light is advanced as the cause for deterioration of book-bindings.

"From time immemorial it has been known how serious are the results, due to action of sunlight, to fabrics, paintings, books, etc. In days of old, monks protected their books from direct sunlight, not only with the intention of preserving the bindings, but also to preserve the handwriting and paintings, which would have perished under the action of direct sunlight..."

"When rare bindings and ms. are to be preserved, they are always encased in a 'box binding' lined with velvet. In public libraries the exclusion of direct injurious light rays is the only possible remedy. This is of urgent importance in those countries where the light rays are particularly active, and the tannage of leather is too often of the wrong character, having been too often prepared from pickled stock."

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1917, v. 13, p. 621; *Collegium*, 1919, p. 224.

VEITCH, FLETCHER PEARRE, AND OTHERS.

The care of leather. [Washington: Gov. Prtg. Off., 1920.] 18 p. illus. 8°. (United States. — Department of Agriculture. Farmers' bulletin no. 1183.) p. 19. Bookbinding leather. *VPZ (U. S.)*

State that a small percentage of mineral or oxalic acid will rot the leather in a few years. Bookbinding leathers tanned with sumac or similar tanning material are more durable than those tanned with hemlock bark or tanning materials of like nature. Give directions for greasing bookbinding leathers with vaseline or other petroleum products. The procedure is that prescribed by the librarian of the Worcester County Law Library, Worcester, Mass. Emphasize the advantage of carrying out the application in two or more instalments, rather than depending on a single application.

ATKIN, J., AND R. H. MARRIOTT.

Examination of Roman leather. (*Society of Leather Trades' Chemists, Journal*, London, 1921, v. 5, p. 10-14.)

Roman leather excavated on the site of an old fort, 7½ feet below the present ground level, examined under the microscope is shown to retain its characteristic structure. The degree of tannage is 45, which compares very favorably with modern vegetable-tanned upper leather.

BUETTNER, H.

Der Zeitfaktor bei der Wirkung freier Schwefelsäure im Leder. (*Zeitschrift für Leder- und Gerberei-Chemie*, Hamburg, 1922-23, Bd. 2, p. 131-135.)

Leather may sometimes be stored for months without showing any signs of deterioration and then suddenly it may become tender and fall in powder. Other leathers exhibit a certain tendency to become brittle, but the destructive action of the free acid in them proceeds only slowly. Sometimes the leather may become slightly weak, and then after a time show further weakening. The last-named case is explained by the neutralization of the free acid in the course of time.

Abstract in *Jour. Soc. Chem. Ind.*, 1923, v. 42, p. 734A; *Jour. Am. Leather Chem. Assoc.*, 1923, v. 18, p. 563; *Chem. Zentr.*, 1923, Bd. 4, p. 270.

Der Einfluss der Temperatur auf die Säurewirkung im Leder. (*Zeitschrift für Leder- und Gerberei-Chemie*, Hamburg, 1922-23, Bd. 2, p. 136-142.)

Tests with various tanning agents indicate that sulfited vegetable tannins have a detrimental effect on the permanency of the leather.

Abstract in *Jour. Soc. Chem. Ind.*, 1923, v. 42, p. 735A; *Jour. Am. Leather Chem. Assoc.*, 1923, v. 18, p. 562; *Chem. Zentr.*, 1923, Bd. 4, p. 271.

MOELLER, W.

Die Einwirkung gerbender Substanzen auf Hautsubstanz bei Siedetemperatur. (*Zeitschrift für Leder- und Gerberei-Chemie*, Hamburg, 1922-23, Bd. 2, p. 142-149.)

One gram of hide powder was refluxed for 13 hours with dilute solutions of gallotannic acid, quebracho extract, formaldehyde, chromalum (acid and neutral), Neradol and 6-naphtholsulfonic acid. The percentages of hide powder dissolved were 89.89, 7.87, 82.87, 36.16, 62.50, 85.71 and 89.84 respectively. The results indicate that the vegetable tannage is the true tannage of all.

Abstract in *Jour. Soc. Chem. Ind.*, 1923, v. 42, p. 734A; *Chem. abst.*, 1923, v. 17, p. 2654; *Chem. Zentr.*, 1923, Bd. 4, p. 268.

JALADE, M.

La question de l'acidité des cuirs. (*L. Cuir*, Paris, 1923, v. 12, p. 8.)

The damage due to free acid is increased by moisture. Distinguishes between leather tanned with sulfited extracts and that tanned by the old method.

deterioration of Bookbinding Leathers, cont'd.

DOWKER, ROY CLEMENT, AND M. N. V. GEIB.

Comparative durability of chrome and vegetable tanned sole leathers. Washington: Gov. Prtg. Off., 1925. p.l., 267-286 p. illus. 4°. (United States. — Bureau of Standards. Technologic paper no. 286.) *VBDA (U. S.)*

The investigation was undertaken to determine primarily the comparative wearing quality of vegetable and chrome tanned sole leathers. Results indicate that chrome leathers wear much longer but have disadvantages in appearance, lack of firmness, and lack of water resistance. Abstract in *Jour. Amer. Leather Chem. Soc.*, 1926, v. 21, p. 41.

HIVERS, CEDRIC.

Bookbinding. illus. (Royal Society of Arts, Journal, London, 1925, v. 73, 1077-1096.) *VA*

The author has made exhaustive tests of the various strains of the various leathers used in bookbinding. Apparently leathers tanned by the natives of Nigeria are the most durable; their primitive methods of tanning do not seem to have the destructive influence on leathers that modern processes do.

A method of covering original water color designs with transparent vellum makes possible for the first time the use of color in a permanent form for the external decoration of books. The design is painted upon paper which is covered with transparent vellum (the unstretched skin), the surface of which is tooled with gold.

With discussion.

Abstract in *Jour. Amer. Leather Chem. Soc.*, 1926, v. 21, p. 39-41.

NOTE on acid rot of leather. (Leather and Paper Laboratory, Bureau of Chemistry, U. S. Dept. of Agriculture.) (Hide and leather, Chicago, 1926, v. 72, no. 74, p. 39-40.) †† *VM A*

Leather straps on suitcase were found in an advanced state of deterioration after 14 years. After chemical analysis the deterioration is attributed to the high free acid content and the high percentage of grease.

ITCH, FLETCHER PEARRE, AND OTHERS.

Polluted atmosphere a factor in the deterioration of bookbinding leather. American Leather Chemists Association, Journal, New York, 1926, v. 21, 156-176.) *VMK*

Leather from the back and sides of various

old leather-bound volumes has been analyzed. The leather in the binding most exposed to air and light was most deteriorated, and contained in the water extract the highest amounts of free mineral acid, of sulfates, and of nitrogen as determined by distillation with magnesia. The direct correlation between deterioration, chemical composition, and degree of exposure has been confirmed by comparative analyses of leather from the sides, backs, top edges, and bottom edges of books, portions covered with skiver and uncovered portions, embossed and unembossed leathers. The increase in sulfur or sulfate content of leather during exposure must result from an adsorption of those components from the air, and since bindings that had not been exposed to gas lighting were not exceptional, the deterioration resulting from exposure is attributed to the absorption of sulfurous and acidic impurities from the air of large towns. The nitrogen content shows that the deterioration of the leather is partly the result of a slow hydrolysis of the hide substance by the acid originally present and that taken up from the air. Short-life bindings had a high acidity (4.80-9.10 per cent; 0.68-3.67 per cent in the sides; determined by the Procter-Searle method), indicating the presence originally in the leather of excessive quantities of acid. Several very old bindings (91-161 years) had a low acidity on the sides (1.6-2.8 per cent) and some had only 0.1-0.5 per cent of free acid in the back. Slight alkalinity or very low original acidity promotes longer life in leather bindings. Coatings, finishes, oils, greases, and waxes are beneficial as they prevent the absorption of atmospheric impurities.

Abstract in *Jour. Soc. Chem. Ind.*, 1926, v. 45, p. 455.

WILSON, J. A., AND G. O. LINES.

Hydrolysis of acid sulfate of chrome leather. (American Leather Chemists Association, Journal, New York, 1926, v. 21, p. 299-302.) *VMK*

Show that practically all of the combined acid sulfate of chrome leather is hydrolyzable and will be given up as free sulfuric acid either to distilled water or tap water.

WILSON, J. A., AND E. J. KERN.

Effect of relative humidity on the destruction of leather by acid. (Industrial and engineering chemistry, Easton, 1927, v. 19, p. 115.) † *VOA*

Results indicate that the increase in quantity of free acid present is responsible for its accelerated destructive action upon the leather. Have shown previously that the leather-acid compound is completely hydrolyzable and will give up all of the acid to running water, if sufficient time is allowed (Wilson and Lines, 1926).

Deterioration of Bookbinding Leathers, cont'd.

WOODROFFE, D., AND F. H. HANCOCK.

The action of sulfuric acid on leather. (International Society of Leather Trades Chemists, Journal, Leeds, 1927, v. 11, p. 225.)

Vegetable tanned leathers were soaked in sulfuric acid, struck out, dried and their tensile strength determined. The acid solutions weakened the leathers according to the amount of acid they absorbed.

VEITCH, FLETCHER PEARRE, AND OTHERS.

Note on the deterioration of book-binding leather. (American Leather Chemists Association, Journal, New York, 1928, v. 23, p. 9-12.) VMK

Following their recent article (1926) they

have received a communication from the Binders to the Royal Archives and Library, Windsor Castle, England. He reports that a set of books, identically bound, was broken up and part sent to London and part retained at Windsor Castle. The volumes which were in London 10 years underwent marked decay, whereas those retained were practically unaffected. As Windsor Castle is situated in a position unexposed to industrially polluted air, it is considered that this is good evidence of its harmful effects.

A number of samples of very old leather which have been kept at Windsor Castle and submitted. An analysis showed that six out of ten bindings exhibited no acidity even after the lapse of from 100 to 400 years. The highest acidity found was but 0.53 per cent (Procter Searle method).

The absence of appreciable acidity and the predominance of a pyrogallol tannage, in so far as the latter could be determined, are considered as being sufficient explanation for the relatively long life and good condition of the bindings.

LEATHER PRESERVATIVE COMPOSITIONS

HAWES, F. B. O.

Improvements in the treatment of leathers for their better preservation and surface preparation. British patent no. 3901 (1896).

The leather is impregnated and surfaced with a solution of celluloid instead of the usual varnishes, etc. The resulting material is claimed to be water- and acid-proof, and also very durable.

Abstract in *Jour. Soc. Chem. Ind.*, 1897, v. 16, p. 249.

SCHUTZMITTEL für Ledereinbände. (Papier-Zeitung, Berlin, 1901, Jahrg. 26, p. 978.) 3 - † VMA

"It is now becoming recognised that the leather in which books are bound, like the paper on which they are printed, is frequently apt to deteriorate in course of time, whether it be exposed to sulfurous vapors or not. This destruction is due to a variety of causes; to reagents employed in dyeing the leather, to modern methods of tanning, and to carelessness on the part of the binder in the selection of his varnishes and pastes. Leather bindings are usually varnished with shellac dissolved in borax solution; but this material is far from being moisture-proof or impervious to gases. Even when the shellac is used as an alcoholic varnish, it is but an imperfect protection.

A distinctly better preservative is to be found in casein, of which 5.5 grms. should be dissolved in 7.5 grms. of aqueous ammonia and 100 cc.

of water at a temperature of 75° C. The varnish dries on leather fairly fast, becomes so hard that water and other liquids and vapors have absolutely no effect on the film, and is quite capable of protecting even inherently defective leather bindings."

Two formulas for spirit varnishes are also given.

Abstract in *Jour. Soc. Chem. Ind.*, 1901, v. 20, p. 486.

ARLATAN, P. D'.

Lederkonservierungsmittel. (Seifenfabrik-Zeitung, Augsburg, 1902, Jahrg. 29, p. 854.) 3 - † VO

LEDERKONSERVIERUNGSMITTEL. (Seifenfabrik-Zeitung, Augsburg, 1902, Jahrg. 29, p. 456-457, 476.) 3 - † VO

Formulas for leather creams, dressings, and greases.

PAAS, AND JACOBSEN.

Un procédé pour la conservation du cuir. French patent no. 31802 (1902).

Leather is preserved and waterproofed by a resin, which is introduced with the grease in the currying stage, or as a weak solution (10 per cent) in dilute alcohol, which is employed as bath or applied several times to the surface of the leather.

Abstract in *Jour. Soc. Chem. Ind.*, 1902, v. 21, p. 1405.

Deterioration of Bookbinding Leathers, cont'd.
Leather Preservative Compositions, continued.

ANDÉS, LOUIS EDGAR.

Ueber Lederschmier (Lederkonservierungsmittel). (Seifensieder-Zeitung, Augsburg, 1903, Jahrg. 30, p. 545, 560-561.)
 3 - † VOA

LEDERFETT und Lederkonservierungsöle. (Seifensieder-Zeitung, Augsburg, 1904, Jahrg. 31, p. 821, 865.)

3 - † VOA

ZUSAMMENSETZUNG einiger Lederkonservierungsmittel. (Seifensieder-Zeitung, Augsburg, 1904, Jahrg. 31, p. 32.)
 3 - † VOA

"Semelline" is a mixture of about 88 per cent linseed oil and 12 per cent vaseline oil, perfumed with oil of mirbane. "Majus," "Densol," "Gloria," and "Marsöl" contain train oil, wool fat, birch oil, wood tar, etc.

ANDÉS, LOUIS EDGAR.

Die Fabrikation der Stiefelwichse und der Leder-Konservierungsmittel. Wien und Leipzig: A. Hartleben's Verlag, 1905. 301 p. 2. ed.

SCHOWALTER, H.

Huile pour la conservation du cuir. French patent no. 357525 (1905); also United States patent no. 821260 (1906); British patent no. 21332 (1905).

The composition claimed for the preservation of leather consists of fish oil mixed with a solution of three parts of caoutchouc in 100 parts of turpentine, and 1½ parts of aniline oil.

Abstract in *Jour. Soc. Chem. Ind.*, 1906, v. 25, p. 130.

VULTÉE, L.

Huile pour la conservation des cuirs. French patent no. 356936 (1905).

Claim is made for an oil which will penetrate either dry or wet leather, and will make it thoroughly impervious to water. The oil is applied cold and consists of poppyseed (*Papaver somniferum*) oil, 45 grams; sesame (*Sesamum orientale indicum*) oil, 45 grams; oil from the fruit of *Eriobotrya japonica* (a kind of Japanese medlar), 10 grams.

Abstract in *Jour. Soc. Chem. Ind.*, 1906, v. 25, p. 83.

BECKER.

Die Kältebeständigkeit des Klauenöls. (Collegium, Frankfurt am Main, 1907, no. 279, p. 370-371.) VMA

Reports that when using a neats foot oil for greasing chrome leathers, an exudation forms on the leather and that this cannot always be attributed to the stearine content. He has also found that many oils contain a slimy material and that this separates as a cloudy film when used for the above purpose; in contrast to a true fat exudation this film cannot be removed by warming.

FAHRION, W.

Einiges über Klauenöl. (Collegium, Darmstadt, 1911, p. 209-212.)

"Neatsfoot oil, in spite of its high price, is the oil most frequently used in the manufacture of chrome leather. The reason for this lies in its great resistance to oxidation and rancidity and the somewhat low temperature at which it solidifies."

Abstract in *Jour. Soc. Chem. Ind.*, 1911, v. 30, p. 818; *Chem. Zentr.*, 1911, Bd. 2, p. 397.

VACHERON, A.

Composition for treating belting. British patent no. 20554 (1912); also French patent no. 455702 (1912).

A mixture of pine oleoresin (15 parts), clarified cod liver oil (30), petroleum oil (53), and nitrobenzene (2 parts by weight).

Abstract in *Jour. Soc. Chem. Ind.*, 1913, v. 32, p. 836.

Composition for treating belting. British patent no. 20553 (1912); also French patent no. 455071 (1912).

Fifty parts of turpentine are heated to 40° C. and 20 parts of heavy American "black oil" previously heated to 50° C. are added and the whole well mixed. Twenty parts of glycerin, 6 parts of sesamé oil and 2 parts each of coloring matter and nitrobenzene are thoroughly amalgamated with the mixture. American black oil consists of a mixture of cotton-seed oil, petroleum oil, sesamé oil, and petroleum jelly. The preparation, it is claimed, applied to leather belting imparts suppleness and good gripping qualities, and prevents rotting.

Abstract in *Jour. Soc. Chem. Ind.*, 1913, v. 32, p. 707.

EITNER, W., AND R. KIND.

Verfahren zur Verbesserung und Konservierung von Leder und Leder-

Deterioration of Bookbinding Leathers, cont'd.

Leather Preservative Compositions, continued.

EITNER, W., AND R. KIND, *continued.*

waren. German patent no. 276434 (1913).

Leather is impregnated with a resinous condensation product of a phenol and an aldehyde, with or without addition of a vulcanized fat or fatty acid.

Abstract in *Jour. Soc. Chem. Ind.*, 1914, v. 33, p. 1021.

CHESNEAU, A.

Traitement de cuir pour augmenter sa résistance à l'usage et son imperméabilité. French patent no. 471283 (1914).

The leather is immersed for ten minutes in a mixture of stearine, paraffin wax, beeswax, and rosin at 80° C.

Abstract in *Jour. Soc. Chem. Ind.*, 1915, v. 34, p. 190.

DARLING, S. M.

Composition of matter [leather preservative] and method of producing same. U. S. patent no. 1114590 (1914).

Oil or tar from the destructive distillation of lignite is distilled to dryness, and the fraction of b.p. over 350° F. (177° C) is redistilled while a current of oxygen is blown through it until a wax-like residue is left. This is mixed with an oxidizing oil to form a leather preservative.

Abstract in *Jour. Soc. Chem. Ind.*, 1914, v. 33, p. 1164.

LJUBOWSKI, St.

Über die Ledereinfettungsmittel. (Seifensieder-Zeitung, Augsburg, 1914, Jahrg. 41, p. 1239-1240, 1261-1262, 1305-1306, 1329-1330, 1350-1351; 1915, Jahrg. 42, p. 32.)

3 - VOA

Tallow, train oil, degreas, vaseline oil, beeswax, and neatsfoot oil are used.

McNALLY, S. C.

Composition for preserving leather and other materials. British patent no. 9741 (1915).

A mixture of about twelve parts of grease such as yellow wagon grease, four parts of lard, one part of beeswax, and two parts of a de-

coction of comfrey roots (*Symphytum officinale*) acts as a preservative and waterproofing agent for leather, and will take a fair polish some hours after application.

Abstract in *Jour. Soc. Chem. Ind.*, 1916, v. 35, p. 551.

NATHÓ, F.

Verfahren zur Herstellung einer Imprägnierungsmasse für Leder, usw. D. R. P. 302158 (1915).

Burgundy, coumarone or similar resins are heated with animal fats, and when the mass is brought to a certain consistency and temperature, sulfur is added for the purpose of vulcanization, and then the mixture is allowed to cool and suitably diluted. This filling material is especially good for leather, which it impregnates quickly and renders permanently water proof and flexible. Equally good products are obtained with leather that is not fully tanned, and poor leathers can be improved so as to be equal in value for many purposes to the best grades.

Abstract in *Jour. Soc. Chem. Ind.*, 1918, v. 37, p. 384A.

ROEHM, O.

Materials for oiling leather and for oil-tanning. British patent no. 103668 (1917).

Partly sulfonated oils are very suitable for oiling leather and for oil-tanning, provided that when neutralized they are easily soluble in water and do not separate from solution on standing. Castor oil may be sulfonated with 0.5 per cent only of sulfuric acid, which is slowly run into the oil whilst stirring, the temperature being kept at about 40° C. The product is then neutralized.

Abstract in *Jour. Soc. Chem. Ind.*, 1917, v. 36, p. 1141.

DUNHAM, H. V.

Oil product [for leather treatment] and process of making same. U. S. patent no. 1449976 (1923).

An inedible industrial oil, such as linseed oil, is agitated with a solution of casein in dilute alkali, and the emulsion so formed passed several times through a homogeniser at 3,000 to 10,000 lbs. per sq. inch pressure. The mixture is then evaporated to dryness. The solid so formed when mixed in a pulverent condition with water produces a stable emulsion which may be applied to objects which it is desired to coat with a drying oil.

Abstract in *Jour. Soc. Chem. Ind.*, 1923, v. 42, p. 1085A.

Deterioration of Bookbinding Leathers, cont'd.
Leather Preservative Compositions, continued.

HALLER, MAX.

Die Schmiermittel-Industrie. Leipzig: Verlag von Bernh. Friedr. Voigt, 1925. 141 p. 8°.

VON

p. 131-136. Leather preservatives.

States that leather, if neglected, is by no means insensitive to exterior influences. The cheapest preservative is probably train oil. This material is characterized by the spectacular ease with which it is introduced into the leather. In large scale production the disagreeable odoriferous constituents can be removed by steam distillation, although with small scale produc-

tion the removal is best effected by stirring with a solution of tannin.

The best preservative, however, is degreas, an animal fat which is capable of forming very stable emulsions with large quantities of water.

Other agents are crude vaseline, linseed oil varnishes, and various special mixtures. These latter involve tallow, wax, caoutchouc, mineral oil, rape oil, soft paraffin, wool fat and castor oil. A preparation for the restoration of leather is composed of oleic acid, palmitic acid, soap, and a vegetable tannin solution. Proprietary leather preservatives which are sold under various fantastic names generally consist of train oil with small quantities of wood tar, linseed oil, wool fat or vaseline. Nitrobenzene or birch tar oil is added to mask the odor.

DETERMINATION OF ACIDITY IN LEATHERS

Because of the importance of acidity in the deterioration of leathers, some of the more recent articles dealing with the methods of determination are given here.

THOMAS, ARTHUR W.

The determination of sulfuric acid in leather. (American Leather Chemists' Association, Journal, New York, 1920, v. 15, p. 504-510.)

VMK

It was found that when a leather containing sulfate was treated with a phosphate solution the sulfate ion was replaced by phosphate and thus removed from the leather.

To determine total sulfates, the leather is digested with M/10 KH_2PO_4 at boiling temperature for two hours, filtered, and the sulfate precipitated from the filtrate with BaCl_2 .

Neutral sulfates may be approximately determined by extracting in the same way with a water solution for one hour. About 7 per cent of the acid sulfate ion is removed by this water extraction.

Results obtained in the study of 7 leathers are given.

"Book binders complain that modern leather is not so durable on books as older samples, possibly due to small amounts of sulfuric acid left in it. It is suggested that leather drummed in a phosphate solution before fat-liquoring would have all its free 'mineral' acid extracted and replaced by phosphate. It would be interesting to see whether such leather would be more stable."

Abstract in *Chem. abst.*, 1920, v. 14, p. 2102.

Also in *Hide and leather*, Chicago, May 1, 1920, p. 101.

ATKIN, W. R.

The application of the Procter-Searle method to the determination of the acidity of chrome leather. (Society of Leather Trades Chemists, Journal, Leeds, 1922, v. 6, p. 89.)

HOEVEN, C. VAN DER.

Ueber die Bestimmung freier Schwefelsäure im Leder. (Collegium, Darmstadt, 1922, no. 629, p. 282.)

VMA

Abstract in *Jour. Amer. Leather Chem. Assoc.*, 1923, v. 18, p. 147.

ROGERS, J. S.

Note on the determination of acid in leather. (American Leather Chemists' Association, Journal, New York, 1922, v. 17, p. 204-206.)

VMK

KOHN, S., AND E. CREDE.

The acidity of vegetable tanned leather. (American Leather Chemists' Association, Journal, New York, 1923, v. 18, p. 189-194.)

VMK

Method for determination is not confined to a determination of free sulfuric acid. Collagen sulfates, sulfonates, etc., are ordinarily included in determinations of what is supposed to be free acids. By the method of these authors leather is stirred with water, the pH determined, NaOH added and the change in pH noted.

ROGERS, J. S.

The elucidation of the details of the method for the determination of free sulfuric acid in vegetable tanned leather. — Committee report. (American Leather Chemists' Association, Journal, New York, 1923, v. 18, p. 430-438; discussion, p. 483.)

VMK

Deterioration of Bookbinding Leathers, cont'd.

Determination of Acidity in Leathers, cont'd.

BRADLEY, H., AND A. COHEN.

The indicator test paper for acidity in leather. (Society of Leather Trades Chemists, Journal, Leeds, 1924, v. 8, p. 340.)

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1925, v. 20, p. 190.

HOEVEN, C. VAN DER.

Untersuchungen der mit einigen synthetischen Gerbstoffen hergestellten Leder, mit besonderer Berücksichtigung der Bestimmung freier Schwefelsäure. (Collegium, Darmstadt, 1924, no. 651, p. 251; no. 652, p. 281.)

VMK

The presence of sulfonic acids rather than free sulfuric acid was noted.

Abstract in *Jour. Amer. Leather Chem. Assoc.*, 1927, v. 22, p. 128.

KOHN, S., AND E. CREDE.

Acidity of vegetable tanned leather. (American Leather Chemists' Association, Journal, New York, 1924, v. 19, p. 567-568.)

VMK

PICKARD, R. H., AND A. E. CAUNCE.

Free acid in leather. (Society of Leather Trades Chemists, Journal, Leeds, 1924, v. 8, p. 156.)

Two grams of leather are extracted with 100 cc. of distilled water over a period of not less than 24 hours and the pH of 50 cc. of the solution determined.

STACY, L. E.

Determination of free sulfuric acid in vegetable tanned leather. — Committee report. (American Leather Chemists' Association, Journal, New York, 1924, v. 19, p. 506.)

VMK

BLACKADDER, T.

Determination of free sulfuric acid in vegetable tanned leather — 1924-1925. — Committee report. (American Leather Chemists' Association, Journal, New York, 1925, v. 20, p. 277-282.)

VMK

[SULPHURIC acid in leather.] (Le Cuir technique, Paris, 1925, v. 14, p. 209.)

Quarterly meeting of the Belgian Section Society of Leather Trade Chemists.

"The results show that the presence of 0.5 per cent of sulfuric acid in leather has no harmful effect on the leather or on thread in four months when the leather is stored in a damp place."

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1926, v. 21, p. 46.

ORTHMANN, A. C.

Acidity of chrome tanned leather (American Leather Chemists Association, Journal, New York, 1926, v. 21, p. 30-33.)

VMK

"This work indicates that a chrome tanning process which is in general use for calf skin tanning and which, if proper care in neutralizing and washing is exercised, will result in leather that is entirely free from hydrolyzable acid."

WILSON, JOHN ARTHUR.

Destructive action of sulphuric and hydrochloric acids upon leathers (Journal of industrial and engineering chemistry, Easton, 1926, v. 18, p. 47-50.)

† VOA

"Acid determinations were made on vegetable tanned leather by the Procter-Searle method. Sulphuric acid in chrome leather was taken as the difference between total sulphate (Thomas method) and sulphate left upon ashing. Hydrochloric acid was taken as the difference between total chloride and chloride present in the ash."

"It was found that acid contents greater than 4 per cent for vegetable tanned and 10 per cent for chrome leather, according to methods of analysis used, caused marked destruction of leather."

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1926, v. 21, p. 181.

WOODROFFE, D.

The Procter-Searle method of determining free mineral acid in leather (International Society of Leather Trades Chemists, Journal, Leeds, 1927, v. 11, p. 394.)

Procter-Searle determinations on different leathers treated with various products containing sulfonic groups in general showed positive results. It is suggested that the Procter-Searle test should be combined with a pH determination on the water extract to ascertain whether the product in the leather is harmful or not.

Abstract in *Jour. Am. Leather Chem. Assoc.*, 1928, v. 23, p. 209.

MODERN EGYPT

A LIST OF REFERENCES TO MATERIAL IN THE NEW YORK PUBLIC LIBRARY

COMPILED BY IDA A. PRATT
Under the direction of Dr. Richard Gottheil

ORDER OF ARRANGEMENT

BIBLIOGRAPHY	HISTORY, <i>continued.</i>	ECONOMIC HISTORY
PERIODICALS AND SOCIETY PUBLICATIONS	1801 TO DATE	INDUSTRIES
NEWSPAPERS	MUHAMMAD ALI	AGRICULTURE
ANTHROPOLOGY AND ETHNOLOGY	NATIONALISM	IRRIGATION
EGYPT	GOVERNMENT	RAILWAYS AND PUBLIC WORKS
SUDAN	PUBLIC DOCUMENTS	MAGIC AND SUPERSTITIONS
CLIMATE	COURTS OF LAW	RELIGION
DESCRIPTION AND TRAVEL	LAW	MUHAMMADANISM
ALEXANDRIA	ARMY AND NAVY	JEWS IN EGYPT
CAIRO	FOREIGN RELATIONS	CHRISTIAN MISSIONS
AZHAR MOSQUE	CAPITULATIONS	ARABIC INSCRIPTIONS
NUBIA	COMMERCE	ARABIC PAPYRI
GUIDEBOOKS	MANNERS AND CUSTOMS	LANGUAGE
CENSUS AND VITAL STATISTICS	SLAVERY	EGYPTIAN DIALECT OF ARABIC
GEOGRAPHY	EDUCATION	LANGUAGE
NILE RIVER	NUMISMATICS	LITERATURE
GENERAL WORKS	ART AND ARCHITECTURE	DRAMA
SOURCES	(MUHAMMADAN)	NUBIAN LANGUAGE AND LITERATURE
SUEZ CANAL AND ISTHMUS	MUSIC	OTHER LANGUAGES SPOKEN IN THE SUDAN
BIBLIOGRAPHY	SCIENCE	ARABIC LITERATURE
GENERAL WORKS	GENERAL WORKS	SUDAN
HISTORY	ASTRONOMY	DESCRIPTION
FROM THE MUHAMMADAN INVASION TO THE NAPOLEONIC EXPEDITION	GEOLOGY	HISTORY
SALADIN	BOTANY	LIBYAN DESERT
NAPOLEONIC EXPEDITION	ZOOLOGY	
	MEDICINE	

PART VIII

(Conclusion)

SUDAN

Description

Arminjon, Pierre. La valeur économique du Soudan anglo-égyptien. (Revue économique internationale. Bruxelles, 1911. 8°. année 8, v. 3, p. 470-513.) **TAA**

Artin, Yacoub. England in the Sudan. Translated from the French of the author by George Robb. London: Macmillan and Co., Ltd., 1911. xvi, 251 p., 1 map, 2 ports., 56 pl. 8°. **BLH**

Beaucorps, J., comte de. Sur le Nil Blanc: de Khartoum à Gondokoro. (Tour du monde. Paris, 1909. f°. nouv. série, année 15, p. 589-624.) † **KBA**

Ben Assher, pseud. A nomad in the south Sudan. The travels of a political officer among the Gaweir Nuers. London: H. F. & G. Witherby, 1928. 296 p., 1 map, 12 pl. 8°. **BLH**

Berry, William J. The Arabs of Kordofan: a study of adaptation. (Scottish geographical magazine. Edinburgh, 1928. 8°. v. 44, p. 278-292.) **KAA**

Bolognesi, Angelo Castel. Voyage au fleuve des Gazelles (Nil Blanc), 1856-1857. (Tour du monde. Paris, 1862. 4°. 1862, semestre 1, p. 385-397.) † **KBA**

Cailliaud, Frédéric. Voyage à Méroé, au Fleuve Blanc, au delà de Fazoql dans le midi du royaume de Sennâr, à Syouah et dans cinq autres oasis; fait dans les années 1819, 1820, 1821 et 1822. tome 1-4 and atlas. Paris: Imprimerie royale, 1823-27. 8°, f°. **BLH** and ††† **BLH**

Cana, Frank R. Egyptian and Sudan frontiers. (Contemporary review. New York, 1914. 8°. v. 105, p. 688-697.) * **DA**

Sudan — Description, continued.

Comyn, David Charles Edward Ffrench. Service and sport in the Sudan. A record of administration in the Anglo-Egyptian Sudan. With some intervals of sport and travel. London: J. Lane, 1911. xxiii, 331 p., 3 maps, 15 pl., 1 port. 8°. **BLH**

Crowfoot, John Winter. Wedding customs in the northern Sudan. (Sudan notes and records. Khartoum, 1922. 8°. v. 5, p. 1-28.) ***OAA**

Cuny, Charles. Journal de voyage de Siout (Haute-Égypte) à el-Obéid (Kordofan) du 22 novembre 1857 au 5 avril 1858. [Introduction by V. A. Malte-Brun.] (Nouvelles annales des voyages. Paris, 1862. 8°. série 6, année 1862, tome 3, p. 257-341; tome 4, p. 22-85, 175-225.) **KA**

Dennis, James Teackle. From cataract to equator. Illustrated with photographs by the author. Boston: R. G. Badger [1913]. 217 p., 16 pl. 12°. **BLH**

Dinomé, abbé. Voyage de M. M. de Beurmann en Afrique. (Nouvelles annales des voyages. Paris, 1862. 8°. série 6, année 1862, tome 4, p. 129-174, 281-321.) **KA**

— See also **Schweinfurth, Georg August.**

Domville-Fife, Charles William. Savage life in the black Sudan; an account of an adventurous journey of exploration amongst wild & little-known tribes inhabiting swamps, dense forests, mountain-tops & arid deserts hitherto almost unknown, with a description of their manner of living, secret societies & mysterious & barbaric rites. Philadelphia: J. B. Lippincott Co., 1927. 2 p.l., 3-284 p., 1 map, 16 pl. 8°. **QPF**

— The Sudan: its exploration and development. (Discovery. London, 1926. 4°. v. 7, p. 302-305.) ***DA**

Dubois, R. Bas Chari, rive sud du Tchad et Bahr el Ghazal. 1 map. (Annales de géographie. Paris, 1903. 8°. tome 12, p. 339-356.) **KA**

Dugmore, Arthur Radclyffe. The vast Sudan. London: Arrowsmith [1924]. 312 p., 3 maps, 43 pl. 8°. **BLH**

Dunn, S. C. Native gold washings in the Nuba mountains province. (Sudan notes and records. Khartoum, 1921. 8°. v. 4, p. 138-145.) ***OAA**

Dyé, A. Henri. Le Bahr el Ghazal. Notions générales sur la province, les rivières, les plateaux et les marais. 2 maps, 4 pl. (Annales de géographie. Paris, 1902. 8°. tome 11, p. 315-338.) **KA**

Edwards, Frederick A. The foundation of Khartoum. (Sudan notes and records. Khartoum, 1922. 8°. v. 5, p. 157-162.) ***OAA**

The **Egyptian** Sûdan. (Scottish geographical magazine. Edinburgh, 1885. 8°. v. 1, p. 112-118.) **KA**

The **Egyptian** Sudan. 1 map. (Scottish geographical magazine. Edinburgh, 1899. 8°. v. 15, p. 57-74.) **KA**

English, George Bethune. Relation d'une expédition à Dongola et à Sennaar, sous le commandement d'Ismael-Pacha, entreprise par ordre de Méhémed-Aly, Pacha d'Égypte ... (Nouvelles annales des voyages. Paris, 1824. 8°. tome 24, p. 34-64, 145-175.) **KA**

Felkin, Robert W. The Egyptian Sûdan. (Scottish geographical magazine. Edinburgh, 1885. 8°. v. 1, p. 221-238.) **KA**

— The Soudan question. (Contemporary review. London, 1898. 8°. v. 74, p. 482-497.) ***DA**

Fleming, G. J. Kassala. (Sudan notes and records. Khartoum, 1922. 8°. v. 5, p. 65-77.) ***OAA**

Frewer, Ellen E., translator. See **Schweinfurth, Georg August.**

Friederichsen, Ludwig. See **Pfund, Johann Gabriel.**

Garstin, Sir William Edmund. Note on the Soudan. Cairo: National Printing Office, 1899. 46 p. f°. † **BKB p.v.3, no.7**

At head of title: Ministry of Public Works.

— See also **Great Britain.** — Foreign Office. Egypt. 1899, no. 5.

Giffen, John Kelly. The Egyptian Sudan. New York: F. H. Revell Company [1905]. 252 p., 2 maps, 9 pl. [3. ed.] 8°. ***OFY**

Gleichen, Edward, lord. See **Sudan.** — Intelligence Department.

Great Britain. — Foreign Office. Egypt. 1883, no. 11. Report on the Soudan by Lieutenant-Colonel Stewart. London: Harrison and Sons [1883]. 39 p., 2 maps. f°. (Great Britain. — Parliament. Sessional papers. 1883, v. 84.) ***SDD**

— Egypt. 1897, no. 3. Reports on the province of Dongola. London: Harrison and Sons [1897]. 1 p.l., 16 p., 1 l. f°. (Great Britain. — Parliament. Sessional papers. 1897, v. 102.) ***SDD** and † **XBI**

— Egypt. 1899, no. 5. Despatch from Her Majesty's agent and consul-general at Cairo, inclosing a report on the Soudan by Sir William Garstin. London: Harrison and Sons [1899]. 28 p. f°. (Great Britain. — Parliament. Sessional papers. 1899, v. 112.) ***SDD** and † **XBI**

— Soudan. 1923, no. 1. Report on the finances, administration and condition of the Soudan in 1921. London: His Majesty's Sta-

Sudan — Description, continued.

Great Britain. — Foreign Office, *continued.*

tionery Office, 1923. 53 p. 8°. (Great Britain. — Parliament. Sessional papers. 1923, v. 25.) **XBI** and * **SDD**

For the reports, 1898–1920, see the section **ECONOMIC HISTORY** in this list.

— Sudan. 1923, no. 2. Report on the finances, administration and condition of the Sudan in 1922. London: His Majesty's Stationery Office, 1923. 68 p. 8°. (Great Britain. — Parliament. Sessional papers. 1923, v. 25.) * **SDD**

— Sudan. 1924, no. 2. Report on the finances, administration and condition of the Sudan in 1923. London: His Majesty's Stationery Office, 1924. 67 p. 8°. (Great Britain. — Parliament. Sessional papers. 1924, v. 30.) * **SDD**

— Sudan. 1925, no. 1. Report on the finances, administration and condition of the Sudan in 1924. London: His Majesty's Stationery Office, 1925. 77 p. 8°. (Great Britain. — Parliament. Sessional papers. 1924–25, v. 30.) * **SDD**

— Sudan. 1926, no. 2. Report on the finances, administration and condition of the Sudan in 1925. London: His Majesty's Stationery Office, 1926. 89 p. 8°. (Great Britain. — Parliament. Sessional papers. 1926, v. 30.) * **SDD**

Gregory, Augusta, lady. Glimpses of the Soudan. (Fortnightly review. London, 1884. 8°. new series, v. 35, p. 377–384.) * **DA**

Grossard. Mission de délimitation de l'Afrique équatoriale française et du Soudan anglo-égyptien, exposé des travaux par le lieutenant-colonel Grossard... Préface du général Mangin... Paris: É. Larose, 1925. 2 p.l., viii, 343 p., 2 l., 2 maps, 16 pl. 8°. **BMW**

The **Hadendowa** tribe of the Anglo-Egyptian Sudan. (Central Asian Society. Journal. London, 1926. 8°. v. 13, p. 375–381.) **BBA**

Hayes, Arthur J. The source of the Blue Nile. A record of a journey through the Soudan to Lake Tsana in western Abyssinia, and of the return to Egypt by the valley of the Atbara with a note on the religion, customs, etc., of Abyssinia... and an entomological appendix by E. B. Poulton. London: Smith, Elder & Co., 1905. xi, 315 p., 2 maps, 32 pl. 8°. * **R** — **BLI**

Heizmann, H. Die zukünftige Baumwollkultur im englisch-ägyptischen Sudan. (Schmollers Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reiche. München, 1914. 8°. Jahrg. 38, Heft 4, p. 335–399.) **SA**

Bibliography: p. 397–399.

Hellwald, Friedrich von. Aegypten und der Sudan. (Unsere Zeit. Leipzig, 1886. 8°. Jahrg. 1886, Bd. 1, p. 609–633, 767–785.) * **DF**

Heuglin, Theodor von. Reise durch die Wüste von Berber nach Sauakin, September 1864. 1 map. (Petermanns Mittheilungen. Gotha, 1866. 4°. 1866, p. 165–171.) **KAA**

— Reise in das Gebiet des Weissen Nil, und seiner westlichen Zuflüsse in den Jahren 1862–1864. Mit einem Vorworte von Dr. Aug. Petermann. Nebst einer Karte sowie 9 in den Text gedruckten Holzschnitten und acht Tafeln, nach Originalzeichnungen entworfen und auf Holz übertragen von C. Heyn. Leipzig und Heidelberg: C. F. Winter, 1869. x, 382 p., 1 map, 8 pl. 8°. **BLI**

Huot, Louis. Dans l'Oubangui et le Bahr el Ghazal. (Académie de Mâcon. Annales. Mâcon, 1902. 8°. série 3, tome 7, p. 39–64.) * **EN**

Jackson, H. C. Tóoth of fire; being some account of the ancient kingdom of Sennâr. Oxford: B. H. Blackwell, 1912. vii, 106 p., 1 map. 12°. * **OFF**

— A trek in Abu Hamed district. 3 pl. (Sudan notes and records. Khartoum, 1926. 8°. v. 9, p. 1–35.) * **OAA**

Jomard, Edmé François. See **Muhammad ibn 'Umar al-Tûnisî.**

Junker, Wilhelm Johann. Travels in Africa during the years 1875–1878. Translated from the German by A. H. Keane. London: Chapman and Hall, Ltd., 1890. viii, 528 p., 1 map, 1 port. 8°. **BMW**

Keane, Augustus Henry. See **Junker, Wilhelm Johann.**

Leach, T. A. The Selima oasis. 6 pl. (Sudan notes and records. Khartoum, 1926. 8°. v. 9, p. 37–49.) * **OAA**

Lefebvre. Lettre relative à un voyage dans le Sennaar et aux puits artésiens des oasis d'Égypte. (Annales de chimie et de physique. Paris, 1839. 8°. tome 71, p. 201–205.) **PAA**

Lefevre-Méaulle, H. Le Soudan anglo-égyptien. Paris, 1913. 2 p.l., 5–56 p. 8°. (France. — Ministère de Commerce. Rapports commerciaux des agents diplomatiques et consulaires de France. series 1899–1914, no. 1028.) **TLG**

Lejean, Guillaume. Gondokoro, esquisse d'un voyage au Nil Blanc. (Tour du monde. Paris, 1862. 4°. 1862, semestre 1, p. 397–400.) † **KBA**

— Voyage... dans l'Afrique orientale. 1860. (Tour du monde. Paris, 1862. 4°. 1862, semestre 1, p. 177–192.) † **KBA**

— Voyage au Kordofan. (Tour du monde. Paris, 1863. f°. année 4, semestre 1, p. 24–32.) † **KBA**

Léotard, Jacques. Les compétitions européennes dans le Soudan égyptien. 1 map. (Société de géographie de Marseille. Bulletin. Marseille, 1897. 8°. tome 21, p. 324–327.) **KAA**

Sudan — Description, continued.

Lloyd, Watkiss. Notes on Kordofan province. 1 map. (Geographical journal. London, 1910. 8°. v. 35, p. 249-267.) * **KAA**

Lynes, H. Notes on the natural history of Jebel Marra. (Sudan notes and records. Khartoum, 1921. 8°. v. 4, p. 119-137.) * **OAA**

MacMichael, Harold Alfred. Rock pictures in north Kordofan. (Anthropological Institute. Journal. London, 1909. 4°. v. 39, p. 562-568.) * **QOA**

— A seasonal festival at Gebel Midöb. (Sudan notes and records. Cairo, 1919. 8°. v. 2, p. 91-97.) * **OAA**

Marno, Ernst. Reisen im Gebiete des Blauen und Weissen Nil, im ägyptischen Sudan und den angrenzenden Negerländern, in den Jahren 1869 bis 1873... Wien: C. Gerold's Sohn, 1874. vi, 516 p., 2 l., 3 maps, 36 pl. 8°. * **BLI**

Martin, Percy Falcke. The Sudan in evolution; a study of the economic, financial and administrative conditions of the Anglo-Egyptian Sudan... with a foreword by General Sir F. Reginald Wingate... London: Constable and Co., Ltd., 1921. xxxvi, 559 p., 1 map in pocket. 8°. * **BLH**

Maskens, Léon. Rapport sur le Soudan. (Belgium. — Ministère des Affaires Étrangères. Recueil consulaire. Bruxelles, 1902. 8°. tome 117, p. 407-449.) * **TLG**

Masturzi, Giovanni. Il Sudan, il sacro Nilo, l'Egitto. 8 pl. (Universo. Firenze, 1926. 8°. anno 7, p. 813-835.) * **KAA**

Mather, L. Emerson. Five weeks in the Anglo-Egyptian Sudan. 1 pl. (Manchester Geographical Society. Journal. London, 1911. 8°. v. 27, p. 16-20.) * **KAA**

Meinhof, Carl. Eine Studienfahrt nach Kordofan. Hamburg: L. Friederichsen & Co., 1916. xii, 134 p., 1 map, 18 pl. 4°. (Hamburgisches Kolonialinstitut. Abhandlungen. Bd. 35.) * **OFF**

Merton, Arthur. The Sudan. (Nineteenth century. London, 1924. 8°. v. 96, p. 434-442.) * **DA**

Millais, John Guille. Far away up the Nile. With illustrations from drawings by the author, by H. R. Millais, and from photographs. London: Longmans, Green and Co., 1924. x, 254 p., 1 map, 50 pl. 4°. * **BLH**

Milne, A. D. The dry summer on the upper Nile. (Scottish geographical magazine. Edinburgh, 1900. 8°. v. 16, p. 89-92.) * **KAA**

Montell, A. Soudan égyptien. Le chemin de fer Berber-Souakim. (Revue française de l'étranger et des colonies. Paris, 1906. 8°. tome 31, p. 227-232.) * **KAA**

Moore, D. Gwyther. Notes on the legislation of the Anglo-Egyptian Sudan. (Society of Comparative Legislation. Journal. London, 1924. 8°. series 3, v. 6, p. 131-134.) * **SEA**

Muhammad ibn 'Umar al-Tūnisī. Travels of an Arab merchant in Soudan (the black kingdoms of central Africa). 1. Darfur. 2. Wadai. Abridged from the French by Bayle St. John. London: Chapman & Hall, 1854. xvi, 336 p. 8°. * **OFY**

— Voyage au Dârfour, ou l'aiguisement de l'esprit, par le voyage au Soudan et parmi les Arabes du centre de l'Afrique, par le cheykh Mohammed ibn Omar el-Tounsny. Autographié et publié par Mr. Perron. Paris: B. Duprat, 1850. 4, 314, 4 p. 4°. * **OFY**
Arabic text.

— Voyage au Darfour par le cheykh Mohammed ebn-Omar el-Tounsny... traduit de l'arabe par le Dr. Perron... Ouvrage accompagné de cartes et de planches et du portrait du sultan Abou Madian; publié par les soins de M. Jomard... Précédé d'une préface contenant des remarques sur la région du Nil Blanc supérieur par le même... Paris: B. Duprat, 1845. 3 p.l., lxxxviii, 492 p., 2 maps, 4 pl. 8°. * **OFY**

— Voyage au Ouadây par le cheykh Mohammed ibn Omar el-Tounsny... traduit de l'arabe par le Dr. Perron... Ouvrage accompagné de cartes et de planches et du portrait du cheykh, publié par le Dr. Perron et M. Jomard... Paris: B. Duprat, 1851. 2 p.l., lxxxv, 756 p., 2 l., 1 map, 1 port., 8 pl. 8°. * **OFY**

Perron, A. Lettre sur le voyage au Soudan du schaykh Mohammad al-Towniciyy. (Journal asiatique. Paris, 1839. 8°. série 3, tome 8, p. 177-206.) * **OAA**

Myers, Arthur Bowen Richards. Life with the Hamran Arabs, an account of a sporting tour of some officers of the guards in the Soudan during the winter of 1874-5. London: Smith, Elder, & Co., 1876. xvi, 355 p., 5 pl. 8°. * **OFF**

Neufeld, Charles. In Ketten des Kalifen: zwölf Jahre Gefangenschaft in Omdurman. Berlin: W. Spemann, 1910. vii, 288 p. 3. ed. 8°. * **OFY**

— A prisoner of the Khaleefa. Twelve years' captivity at Omdurman. London: Chapman & Hall, 1899. xiv, 366 p., 2 maps, 17 pl., 13 ports. 2. ed. 8°. * **AN**

Newbold, D. A desert odyssey of a thousand miles. 12 pl. (Sudan notes and records. Khartoum, 1924. 8°. v. 7, p. 43-92.) * **OAA**

Oberhummer, Eugen. Der Ägyptische Sudan. (Gesellschaft für Erdkunde zu Berlin. Zeitschrift. Berlin, 1915. 8°. 1915, p. 265-314.) * **KAA**

Sudan — Description, continued.

Oyler, D. S. Shilluk notes. (Sudan notes and records. Khartoum, 1926. 8°. v. 9, p. 57-68.) * **OAA**

Oyler, L. Examples of Shilluk folk-lore. (Sudan notes and records. Cairo, 1919. 8°. v. 2, p. 216-223.) * **OAA**

Page, C. H. Inland water navigation of the Sudan. (Sudan notes and records. Cairo, 1919. 8°. v. 2, p. 293-306.) * **OAA**

Peacock, Herbert St. George. Anglo-Egyptian Sudan. A report of the land settlement of the Gezira (Mesellemia district). London: Darling & Son [1913]. 3 p.l., 5-68 p., 6 maps, 25 pl. 4°. **BLH**

Pearson, Hugh D. Progress of survey in the Anglo-Egyptian Sudan. (Geographical journal. London, 1910. 8°. v. 35, p. 532-541.) **KAA**

Perron, A. See Muhammad ibn 'Umar al-Tūnisi.

Pfund, Johann Gabriel. Dr. J. Pfund's Reisebriefe aus Kordofan und Dar-Fur 1875-76. Nach dem Tode des Verfassers hrsg. von der geographischen Gesellschaft in Hamburg. Redigirt von L. Friederichsen. Hamburg: L. Friederichsen & Co., 1878. 1 p.l., 185 p., 1 port. 8°. **BKB p.v.38, no.5**
Repr.: Geographische Gesellschaft in Hamburg. Mitteilungen, 1876-77.

Potagos, Panagiotes. Voyage à l'ouest du Haut Nil. (Société de géographie. Bulletin. Paris, 1880. 8°. série 6, tome 20, p. 5-50.) **KAA**

Prompt. Soudan nilotique. (Institut égyptien. Bulletin. Le Caire, 1894. 8°. série 3, no. 4, année 1893, p. 71-116.) * **EY**

Prout, H. G. General report on the province of Kordofan submitted to General C. P. Stone, chief of the General Staff, Egyptian army. Cairo: Printing Office of the General Staff, 1877. 2 p.l., xii, 210 p., 2 l., 2 charts, 5 maps, 7 pl. 8°. **KEK (Egypt)**

At head of title: Publications of the Egyptian General-Staff.

Reymond, G. Reise des Missionars G. Beltrame an den Weissen Nil und zu den Denkastämmen. (Geographische Gesellschaft in Bern. Jahresbericht. Bern, 1882. 8°. [Bd.] 4, p. 101-119.) **KAA**

Robb, George, translator. See Artin, Yacoub.

Rouire. Délimitation définitive du Congo français et du Soudan égyptien; le traité du 21 mars 1899. (Revue de géographie. Paris, 1899. 8°. tome 45, p. 260-269.) **KAA**

— Omdurman et Fachoda, le Soudan égyptien, rivalité de la France et de l'Angleterre sur le haut Nil. (Revue de géographie. Paris, 1898. 8°. tome 43, p. 401-411.) **KAA**

St. John, Bayle. See Muhammad ibn 'Umar al-Tūnisi.

Savile, Frank Mackenzie. The river of the giraffe; a chronicle of desert, stream, and forest shooting in the southern Sudan. London: H. F. & G. Witherby, 1925. 217 p. illus. 8°. **MYPE**

Schroetter von Kristelli, Hermann. Tagebuch einer Jagdreise an den oberen Nil, weiland des Prinzen Georg Wilhelm, Herzog zu Braunschweig und Lüneburg. Wien: W. Braumüller, 1915. xv, 414 p., 1 map, 8 pl., 1 port., 1 table. 4°. † **MYEE**
Bibliography, p. 390-410.

Schweinfurth, Georg August. Aegyptische Relikten im Äthiopischen Süden. (Service des antiquités de l'Égypte. Annales. Le Caire, 1907. 4°. tome 8, p. 184-191.) * **OBKG**

— The heart of Africa. Three years' travels and adventures in the unexplored regions of central Africa from 1868 to 1871. Translated by Ellen E. Frewer... London: Sampson Low, Marston, Low and Searle, 1873. 2 v. 8°. **BMW**

— New York: Harper and Bros., 1874. 2 v. 8°. **BMW**

— Reise von Chartum über Berber nach Suakin, Januar - März 1866. 1 map. (Gesellschaft für Erdkunde zu Berlin. Zeitschrift. Berlin, 1867. 8°. Bd. 2, p. 1-41.) **KAA**

— Reise von Kassala nach Gedārif, Mai 1865. (Zeitschrift für allgemeine Erdkunde. Berlin, 1865. 8°. Neue Folge, Bd. 19, p. 407-415.) **KAA**

— Reise von Suakin nach Kassala, April 1865. 1 map. (Zeitschrift für allgemeine Erdkunde. Berlin, 1865. 8°. Neue Folge, Bd. 19, p. 385-407.) **KAA**

— Voyage du docteur G. Schweinfurth de Khartoum à Souakin par Berber en janvier et mars 1866. Par l'abbé Dinomé. (Nouvelles annales des voyages. Paris, 1868. 8°. année 1868, tome 1, p. 129-152, 266-312.) **KAA**

— Wahrnehmungen auf einer Fahrt von Chartum nach dem Gazellen-Fluss, Januar - März 1869. (Gesellschaft für Erdkunde zu Berlin. Zeitschrift. Berlin, 1870. 8°. Bd. 5, p. 29-62.) **KAA**

Shoemaker, Michael Myers. Islam lands: Nubia, the Sudan, Tunisia and Algeria. New York: G. P. Putnam's Sons, 1910. 2 p.l., iii-xii p., 1 l., 251 p., 1 plan, 40 pl., 2 ports. 8°. **BKE**

Slatin, Rudolf Carl, Freiherr von. Feuer und Schwert im Sudan. Meine Kämpfe mit den Derwischen, meine Gefangenschaft und Flucht. 1879-1895. Von Rudolph Slatin Pascha... Deutsche Originalausgabe. Mit einem Porträt in Heliogravüre, 19 Abbildungen von Talbot Kelly... Leipzig: F. A. Brockhaus, 1896. 2 v. illus. 8°. **BLC**

Paged continuously.

Sudan — Description, continued.

Slatin, Rudolf Carl, Freiherr von, *continued.*

— Fire and sword in the Sudan. A personal narrative of fighting and serving the Dervishes, 1879–1895. By Rudolf C. Slatin Pasha... Translated by Major F. R. Wingate... Illustrated by R. Talbot Kelly. London: E. Arnold, 1896. 2 p.l., vii–xviii p., 1 l., 636 p., 2 maps, 20 pl. 8°. **BLC**

Reviewed by F. D. Lugard in the *National review*, v. 27, p. 178–196, * *DA*.

SLATIN Pacha. 1 port. (*Revue d'Égypte*. Le Caire, 1895. 8°. année 1, p. 743–747.) * **OBH**

Stewart, D. H. See *Great Britain*. — Foreign Office. Egypt. 1883, no. 11.

Sudan. — Intelligence Department. The Anglo-Egyptian Sudan: a compendium prepared by officers of the Sudan government. Edited by Lieut.-Colonel Count Gleichen. London: Printed for His Majesty's Stationery Office, by Harrison and Sons, 1905. 2 v. illus. f°. † **BLH**

Appendix H. Bibliography and cartography of the Sudan: v. 1, p. 339–349.

The **Sudan** directory. Edition 1 (July, 1921). Khartoum [1921]. 8°. * **RD-BAZ**

Sudan notes and records. v. 1 – date. Cairo, Khartoum, 1918 – date. 8°. * **OAA**

— Index, v. 1–6. Khartoum, 1925. 43 p. 8°. * **OAA**

Teisseire, Raymond. La question du Haut-Nil au point de vue juridique, d'après les Livres bleus et le Livre jaune. (Société de géographie de Marseille. Bulletin. Marseille, 1898. 8°. tome 22, p. 401–410.) **KAA**

Thompson, Reginald Campbell. The ancient goldmines at Gebêt in the eastern Sudan. (Man. London, 1908. 4°. v. 8, no. 36.) **QO**

— A pilgrim's scrip. With illustrations and a map. London: J. Lane, 1915. xii, 345 p., 1 map, 32 pl. 8°. * **OF**

Trémeaux, Pierre. Voyage au Soudan oriental. (Tour du monde. Paris, 1866. f. 1866, semestre 2, p. 152–192.) † **KB**

Villiers, Frederic. My recent journey from the Nile to Suakim. (Royal Society of Art Journal. London, 1898. 8°. v. 46, p. 233–240.) **V**

Ward, John. The wonders of the Sudan. 1 map, 5 pl. (The Monthly review. London, 1903. 8°. v. 11, May, p. 89–99.) * **D**

Whitehead, G. O. Nagaa and Masawat. (Sudan notes and records. Khartoum, 1926. 8°. v. 9, p. 59–67.) * **OA**

Wills, J. T. The cultivable area of the Egyptian Sudan. (Scottish geographic magazine. Edinburgh, 1886. 8°. v. 2, p. 41–415.) **KA**

Wilson, Sir Charles William. On the tribes of the Nile valley, north of Khartum. (Anthropological Institute. Journal. London, 1888. 8°. v. 17, p. 3–23.) **QO**

Wingate, Sir Francis Reginald, 1. bar. See **Slatin**, Rudolf Carl, Freiherr von.

Winship, North. The Anglo-Egyptian Sudan: a commercial handbook. Washington: Government Printing Office, 1927. vi, 80 p., 1 map. 8°. (United States. — Bureau of Foreign and Domestic Commerce. Trade promotion series. no. 49.) **TLG (U. S.)**

History

A propos de Fachoda: la France et l'Angleterre. (La Grande revue. Paris, 1898. 8°. année 2, tome 4, p. 270–288.) * **DM**

Abcarius, Najib. See *Fihrist ta'arikh al-hawādith fi al-Sūdān*.

Alford, Henry S. L., and W. DENNISTOUN SWORD. The Egyptian Soudan; its loss and recovery including: 1. A rapid sketch of the history of the Soudan; 2. A narrative of the Dongola expedition, 1896; 3. A full account of the Nile expeditions, 1897–8. With numerous portraits, illustrations and maps and records of the services of the officers (1896–8)... London: Macmillan and Co., Ltd., 1898. xiv p., 1 l., 336 p., 11 maps, 16 pl., 5 ports. 8°. **BLC**

Atteridge, Andrew Hilliard. Towards Khartoum; the story of the Soudan war of 1896. With maps, portraits and numerous illustrations from photographs taken by the author. London: A. D. Innes & Co., 1897. xxiv, 357 p. 8°. **BLC**

Baker, Sir Samuel White. Egypt's present frontier. (Nineteenth century. London, 1888. 8°. v. 16, p. 27–46.) * **D**

Baratier, A. Fachoda. Souvenirs de la mission Marchand. (Le Correspondant. Paris, 1924. 8°. tome 295 [nouv. série, tome 255], p. 816–856, 961–997.) * **DI**

Becker, Carl Heinrich. Zur Geschichte des östlichen Sūdān. (Der Islam. Strassburg, 1910. 8°. Bd. 1, p. 153–177.) * **OA**

Bennett, Ernest N. After Omdurman. (Contemporary review. London, 1899. 8°. v. 75, p. 18–33.) * **D**

— The downfall of the dervishes; or, The avenging of Gordon, being a personal narrative of the final Soudan campaign of 1898... London: Methuen & Co., 1899. xxv, 255 p., 1 map, 2 plans, 1 port. 12°. **BL**

Sudan — History, continued.

Beresford (1st baron), Charles William De la Poer. *The Soudan war of 1884-5*. (In his: *Memoirs*. Boston, 1914. 8°. v. 1, p. 211- v. 2, p. 334.) **VYD**

Blanchard, Georges. *L'affaire de Fachoda et le droit international*. (Revue générale de droit international public. Paris, 1899. 8°. tome 6, p. 380-430.) **XBA**

— *Le problème de la souveraineté au Soudan nilotique*. (Revue générale de droit international public. Paris, 1903. 8°. tome 10, p. 169-202.) **XBA**

Borelli, Octave. *La chute de Khartoum* 26 janvier 1885. Procès du colonel Hassan-Benhassanoui juin-juillet 1887. Paris: Librairies-imprimeries réunies, 1893. 3 p.l., 235 p., 1 map. 8°. **BLC**

Boulger, Demetrius Charles. *Fashoda and the upper Nile*. (Contemporary review. London, 1898. 8°. v. 74, p. 667-673.) ***DA**

— *The life of Gordon*. . . London: T. F. Unwin, 1897. vii p., 2 l., 337 p., 1 pl., 2 ports. 3. ed. 8°. **AN**

— *The next move in the Soudan*. (New century review. London, 1897. 8°. v. 1, p. 464-474.) ***DA**

Bourdarie, Paul. *Fachoda: la mission Marchand. La question d'Égypte, le Bahr-el-Ghazal. La convention du 21 mars 1899*. Paris: F. Levé, 1899. 1 p.l., 32 p. 4°. **† BKB p.v.3, no.4**

Budge, Sir Ernest Alfred Thompson Wallis. *The Egyptian Sūdān, its history and monuments*. With numerous illustrations. Philadelphia: J. B. Lippincott Co., 1907. 2 v. 4°. ***OBM**

Bibliography of the Sudan: v. 2, p. 515-572.

Burleigh, Bennet. *Khartoum campaign 1898; or, The re-conquest of the Soudan*. With maps, plans of battle, and numerous illustrations. London: Chapman & Hall, 1899. 2 p.l., vii-xii, 348 p., 2 ports. 3. ed. 8°. **BLC**

— *Sirdar and Khalifa; or, The re-conquest of the Soudan, 1898*. London: Chapman & Hall, 1898. 2 p.l., vii-xiv, 305 p., 1 map, 1 port. 8°. **BLC**

Caix, Robert de. *Fachoda. La France et l'Angleterre*. Paris: J. André, 1899. viii, 321 p., 1 l., 3 maps. 12°. **BLB**

Canal, Frank R. *Egyptian and Sudan frontiers*. (Contemporary review. London, 1914. 8°. v. 105, p. 688-697.) ***DA**

Chaillé-Long, Charles. *L'Égypte et ses provinces perdues*. Paris: La Nouvelle revue, 1892. 3 p.l., 327 p. 8°. **BLH**

Chamberlain, Joseph. *The British occupation of Egypt. Egypt and the Soudan*. (In his: *Foreign & colonial speeches*. London, 1897. 12°. p. 31-69.) **CC**

Charaux, Victor. *L'Égypte et le Soudan égyptien à la fin du XIX^e siècle*. (Études franciscaines. Bruxelles, 1905. 8°. v. 14, p. 360-381.) **ZMV**

Churchill, Winston Leonard Spencer. *The Fashoda incident*. (North American review. New York, 1898. 8°. v. 167, p. 736-743.) ***DA**

— *The river war: an historical account of the reconquest of the Soudan*. Edited by Col. F. Rhodes. Illustrated by Angus McNeill. London: Longmans, Green & Co., 1899. 2 v. 8°. ***R - BLC**

Bibliography: p. xi - xiv.

Cocheris, Jules. *Situation internationale de l'Égypte et du Soudan* (juridique et politique). Paris: Plon-Nourrit et Cie, 1903. 4 p.l., 616 p., 1 map. 8°. **BLB**

Colville, Sir Henry Edward. *History of the Sudan campaign*. London: Harrison and Sons [1889]. 2 v. and case of maps. 8°. **BLC**

Compiled in the Intelligence Division of the War Office.

Cosson, E. A. de. *The future of the Soudan*. (Fortnightly review. London, 1884. 8°. new series, v. 36, p. 516-527.) ***DA**

Declé, Lionel. *The Fashoda question*. 1 map. (Fortnightly review. London, 1898. 8°. v. 70, p. 665-676.) ***DA**

Dehérain, Henri. *L'occupation égyptienne du Haut Nil*. (Revue des deux mondes. Paris, 1898. 8°. tome 150, p. 182-200.) ***DM**

— *Le Soudan égyptien sous Méhémet Ali*. Paris: G. Carré et C. Naud, 1898. xii, 384 p., 1 l., 7 maps. 8°. **BLH**

Deloncle, J. L. *La question de Fachoda avant et après*. (Revue politique et parlementaire. Paris, 1898. 8°. tome 18, p. 277-300.) **SEA**

Demanche, Georges. *La convention franco-anglaise du 21 mars 1899*. (Revue française de l'étranger et des colonies. Paris, 1899. 8°. tome 24, p. 202-205.) **KAA**

— *Français et Anglais sur le Nil*. (Revue française de l'étranger et des colonies. Paris, 1898. 8°. tome 23, p. 561-570.) **KAA**

Despagnet, F. *Égypte et Grande-Bretagne*. Convention du 19 janvier 1899 relativement à la souveraineté et à l'administration du Soudan. (Revue générale de droit international public. Paris, 1899. 8°. v. 6, p. 169-196.) **XBA**

The Destiny of Khartoum. (Dublin review. London, 1885. 8°. series 3, v. 13, p. 355-381.) ***DA**

Devonshire (8th duke), Spencer Compton Cavendish. *General Gordon's mission to the Soudan*. Speech delivered by the Right Hon.

Sudan — History, continued.

Devonshire (8th duke), Spencer Compton Cavendish, *continued.*

the Marquis of Hartington, in the House of Commons, on Tuesday, the 13th May, 1884, on the proposed vote of censure moved by Sir Michael Edward Hicks Beach, bart. . . [London:] National Press Agency, Ltd. [1884.] 16 p., 1 map. 8°. **BLH p.v.1, no.3**

Dickhuth. Die Entwicklung der gegenwärtigen Verhältnisse im Sudan. 1 map. (Militär-Wochenblatt. Beihefte. Berlin, 1899. 8°. 1899, p. 47-76.) **VWA**

Dujarric, Gaston. La chute de Khartoum et le procès du colonel Hassan-Bey Benhasaoui. (Revue de l'Islam. Paris, 1895-96. 4°. tome 1, p. 129-141.) *** OAA**

— De Khartoum à Omdurman (1885-1898). (Revue de l'Islam. Paris, 1898. 4°. tome 3, p. 129-132, 145-148.) *** OAA**

— L'état mahdiste du Soudan. Préface par Henri Pensa. Paris: J. Maisonneuve, 1901. 2 p.l., iv, 312 p., 1 l. 8°. **BLC**

Edwards, Frederick A. How the Sudan was conquered. (Westminster review. London, 1898. 8°. v. 150, p. 609-617.) *** DA**

— War-time in the Sudan. (Asiatic review. London, 1923. 8°. new series, v. 19, p. 29-41.) *** OAA**

Egypt and the Sudan. (Round table. London, 1924. 8°. v. 14, p. 667-682.) **SEA**

Emin Pasha (Eduard Schnitzer). Die Tagebücher von Dr. Emin Pascha; hrsg., mit Unterstützung des Hamburgischen Staates und der Hamburgischen wissenschaftlichen Stiftung von Dr. Franz Stuhlmann. Bd. 1-4, 6. Hamburg, 1916-27. 5 v. 4°. **BKD**

FELKIN, Robert W. The position of Dr. Emin Bey. (Scottish geographical magazine. Edinburgh, 1886. 8°. v. 2, p. 705-719.) **KAA**

HASSAN, Vita. Die Wahrheit über Emin Pascha, die ägyptische Aequatorialprovinz und den Ssudän, von Vita Hassan... unter der Mitarbeit von Elie M. Baruck. Aus dem französischen Original übersetzt und mit Anmerkungen versehen von Dr. B. Moritz. Teil 1-2. Berlin: D. Reimer, 1893. 8°. *** OFP**

JEPHSON, Arthur Jeremy Mounteney. Emin Pasha and the rebellion at the equator. A story of nine months' experiences in the last of the Soudan provinces. With the revision and co-operation of Henry M. Stanley ... New York: C. Scribner's Sons, 1890. xxiv, 490 p., 20 pl., 3 ports., and 1 facsim. and 2 maps in pocket. 8°. **BLH**

— New York: C. Scribner's Sons, 1891. xxiv, 490 p., 20 pl., 3 ports. 8°. **BLH**

KEROHANT, H. de. Emin-Pacha. (Annales de l'extrême Orient et de l'Afrique. Paris, 1889. 4°. v. 12, p. 353-357.) *** OWB**

OBITUARY. Emin Pasha (Eduard Schnitzer). 1 port. (Scottish geographical magazine. Edinburgh, 1893. 8°. v. 9, p. 590-593.) **KAA**

PETERS, Carl. From the mouth of the Tana to the source-region of the Nile. (Scottish geographical magazine. Edinburgh, 1891. 8°. v. 7, p. 113-123.) **KAA**

REICHARD, Paul. Dr. Emin Pascha, ein Vorkämpfer der Kultur im innern Afrikas. Mit Original-Abbildungen von R. Heilgrewe. Leipzig: O. Spamer, 1891. vi p., 1 l., 314 p., 13 pl., 1 port. 8°. **BMW**

STANLEY, Sir Henry Morton. The Emin Pasha relief expedition. 1 map. (Scottish geographical magazine. Edinburgh, 1890. 8°. v. 6, p. 337-353.) **KAA**

— In darkest Africa; or, The quest, rescue, and retreat of Emin, governor of Equatoria. New York: Charles Scribner's Sons, 1890. 2 v. 8°. **BMW**

SYMONS, A. J. A. Emin, the governor of Equatoria. London: The Fleuron, Ltd., 1928. 4 p.l., 47 p. 8°. *** KP (Curwen)**

WHITE, Arthur Silva. The relief of Emin Pasha. (Scottish geographical magazine. Edinburgh, 1890. 8°. v. 6, p. 638-650.) **KAA**

Der Englisch-ägyptische Sudan Feldzug 1896-98. 1 map. (Jahrbuecher für die deutsche Armee und Marine. Berlin, 1899. 8°. v. 110, p. 131-174.) **VWA**

Fashoda and Lord Salisbury's vindication. [Signed: Diplomaticus.] (Fortnightly review. London, 1898. 8°. v. 70, p. 1002-1014.) *** DA**

Fauzi, Ibrāhīm, pasha. Kitāb al-Sudān bain yadi Gordon wa-Kitchener. [A history of the Soudan under Gordon and Kitchener.] Cairo, 1901. 2 v. in 1. 8°. *** OFP**

Fihrist ta'arikh al-hawādith fi al-Sūdān. [A chronology of events that have occurred in the Sudan between the years 1881 and 1889; put together at the command of the Sirdār General Grenfell Pasha and translated into Arabic by Najīb Abcarius.] Cairo, 1891. 112 p. 4°. *** OFP**

Forbes, Urquhart A. Egypt and the Sudan. (London quarterly review. London, 1899. 8°. v. 91 [new series, v. 1], p. 98-114.) *** DA**

France. — Ministère des Affaires Étrangères. Documents diplomatiques. Affaires du Haut-Nil et du Bahr-el-Ghazal. 1897-1898. Paris: Imprimerie nationale, 1898. vi, 26 p. f°. **† XBI**

France, Russia and the Nile. (Contemporary review. London, 1898. 8°. v. 74, p. 761-778.) *** DA**

The French at Fashoda. (Speaker. London, 1898. 4°. v. 18, p. 330-331.) *** DA**

Sudan — History, continued.

Freycinet, C. de. Fachoda. (Revue de Paris. Paris, 1905. 8°. année 12, tome 2, p. 673-688.) *DM

Galloway, William. The battle of Tofrek fought near Suakin, March 22nd, 1885 under Major-General Sir John Carstairs M'Neill... in its relation to the Mahdist insurrection in the eastern Sudan and to the campaigns of 1884 and 1885. London: W. H. Allen & Co., 1887. xlix, 399 p., 1 map, 5 pl. 4°. BLC

Ganem, H. Europe's stake in the Sudan. (Fortnightly review. London, 1884. 8°. new series, v. 35, p. 645-654.) *DA

Gatacre, W. After the Atbara and Omdurman. (Contemporary review. London, 1899. 8°. v. 75, p. 299-304.) *DA

Gibbons, Herbert Adams. Great Britain in the Sudan. (In his: The new map of Africa. New York, 1916. 8°. p. 1-30.) *R-BKC

Gladstone, William Ewart. Egypt and the Sudan. Speech delivered... in the House of Commons... Feb., 1884. [London: The National Press Agency, 1884.] 31 p. 8°. CBA p.v.24

Gordon, Charles George. Chinese Gordon, the uncrowned king; his character as it is portrayed in his private letters, compiled by Laura C. Holloway. New York: Funk & Wagnalls, 1885. 32 p. 12°. AN

— The journals of Major-Gen. C. G. Gordon, C.B. at Kartoum; printed from the original mss. Introduction and notes by A. E. Hake... with portrait, two maps and thirty illustrations after sketches by Gen. Gordon. Boston: Houghton, Mifflin and Company, 1885. lxiv p., 2 l., 3-479 p., 4 maps, 1 port. 8°. BLB

— Memorandum sur le gouvernement du Soudan et du littoral de la mer Rouge rédigé par Gordon Pacha, le 29 août 1879. 1 map. (Revue d'Égypte. Le Caire, 1894. 8°. année 1, p. 246-250.) *OBH

BIOVÈS, Achille. Gordon Pacha. Paris: A. Fontemoing, 1907. 2 p.l., vii, 345 p., 2 maps. 8°. AN

At head of title-page: Un grand aventurier du XIX^e siècle.

BLUNT, Wilfrid Scawen. Gordon at Khartoum; being a personal narrative of events in continuation of "A secret history of the English occupation of Egypt." London: S. Swift and Co., 1911. xv, 664 p., 1 l., 1 port. 8°. BLB

CHURCHILL, Lord Randolph Henry Spencer. The desertion of General Gordon. (In his: Speeches, 1880-1888. London, 1889. 8°. v. 1, p. 141-151.) CC

GORDON and the Mahdi, an illustrated narrative of the war in the Soudan; including the story of its original conquest by Mehemet Ali, and its progress under General Gordon's energetic rule. London: Vizetelly & Co., 1885. 160 p., 1 map. 4°. †BAC p.v.115, no.3

IN memoriam. Major-General Charles George Gordon. (Colburn's United service magazine. London, 1885. 8°. 1885, part 1, p. 230-241.) *DA

ISAAC, Louis. Gordon à Khartoum. (Société de géographie de Lyon. Bulletin. Lyon, 1887. 8°. tome 7, p. 5-23.) KAA

SINCLAIR, William Macdonald. Gordon and England. A sermon preached at St. Stephen's, Westminster, on Sunday, February 22, 1885. London: Hatchards, 1885. 22 p. 8°. *C p.v.1323, no.5

SVERDRUP, George, jr. A letter from the Mahdi Muhammad Ahmad to General C. G. Gordon. (American Oriental Society. Journal. New Haven, 1911. 8°. v. 31, p. 368-388.) *OAA

Grant, James. Cassell's history of the war in the Sudan. London: Cassell & Co., Ltd. [1885-86.] 6 v. 4°. BLH

Great Britain. — Foreign Office. Egypt. 1884, no. 2. Correspondence respecting General Gordon's mission to Egypt. London: Harrison and Sons [1884]. 1 p.l., 6 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

— Egypt. 1884, no. 6. Despatch from Her Britannic Majesty's agent and consul-general in Egypt, inclosing further instructions to General Gordon. (In continuation of "Egypt, no. 2, 1884.") London: Harrison and Sons [1884]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

— Egypt. 1884, no. 7. Correspondence respecting the affairs of the Sudan. London: Harrison and Sons [1884]. 1 p.l., 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

— Egypt. 1884, no. 8. Further correspondence respecting the affairs of the Sudan. (In continuation of "Egypt no. 7, 1884.") London: Harrison and Sons [1884]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

— Egypt. 1884, no. 9. Text of proclamation of General Gordon to the inhabitants of the Sudan. London: Harrison and Sons [1884]. 2 l. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

— Egypt. 1884, no. 12. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt nos. 5, 6, 7, 8 and 9, 1884.") London: Harrison and Sons [1884]. xii, 205 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 88.) *SDD

*Sudan — Description, continued.***Great Britain.** — Foreign Office, *continued.*

— Egypt. 1884, no. 13. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 12, 1884.") London: Harrison and Sons [1884]. iv, 16 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 15, amended. Further correspondence respecting the affairs of Egypt. London: Harrison and Sons [1884]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 16. Further correspondence respecting the affairs of Egypt. London: Harrison and Sons [1884]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 18. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 12, 1884.") London: Harrison and Sons [1884]. iv, 40 p., 1 l. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 19. Return showing the dates on which the substance and also the full text of telegrams from General Gordon were received at the Foreign Office. London: Harrison and Sons [1884]. 3 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 20. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 18, 1884.") London: Harrison and Sons [1884]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 21. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 20, 1884.") London: Harrison and Sons [1884]. 2 l. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 22. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 21, 1884.") London: Harrison and Sons [1884]. 2 l. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 25. (In continuation of Egypt, nos. 18, 20, 21 and 22, 1884.) Further correspondence respecting the affairs of Egypt. London: Harrison and Sons [1884]. viii, 132 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 26. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 25, 1884.") London: Harrison and Sons [1884]. 1 p.l., 8 p. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

Relates to the police.

— Egypt. 1884, no. 32. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt nos. 25 and 26, 1884.") London: Harrison and Sons [1884]. vi, 48 p., 1 l. f°. (Great Britain. — Parliament. Sessional papers. 1884, v. 89.) *SDD

— Egypt. 1884, no. 34. Further correspondence respecting the affairs of Egypt. London: Harrison and Sons [1884]. 6 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 88.) *SDD

— Egypt. 1884, no. 35. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 32, 1884.") London: Harrison and Sons [1884]. vi, 123 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 88.) *SDD

— Egypt. 1885, no. 1. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 35, 1884.") London: Harrison and Sons [1885]. vi, 159 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 88.) *SDD

— Egypt. 1885, no. 2. Correspondence respecting British military operations in the Soudan. London: Harrison and Sons [1885]. 1 p.l., 11 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 89.) *SDD

— Egypt. 1885, no. 3. Correspondence respecting Prince Hassan's mission to the Soudan. London: Harrison and Sons [1885]. 3 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 89.) *SDD

— Egypt. 1885, no. 9. Further correspondence respecting British military operations in the Soudan. London: Harrison and Sons [1885]. iv, 41 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 89.) *SDD

— Egypt. 1885, no. 13. Further correspondence respecting military operations in the Soudan. (In continuation of "Egypt no. 9, 1885.") London: Harrison and Sons [1885]. iv, 69 p., 6 plans. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 89.) *SDD

— Egypt. 1885, no. 18. Further correspondence respecting military operations in the Soudan. (In continuation of "Egypt no. 13, 1885.") London: Harrison and Sons [1885]. iii, 51 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 89.) *SDD

— Egypt. 1885, no. 20. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 1, 1885.") London: Harrison and Sons [1885]. vii, 126 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 88.) *SDD

Relates to the fall of Khartoum and to Kassala.

— Egypt. 1886, no. 2. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 20, 1885.")

Sudan—History, continued.

Great Britain.—Foreign Office, *continued.*

London: Harrison and Sons [1886]. v, 104 p. f°. (Great Britain.—Parliament. Sessional papers. 1886, v. 74.) *SDD

— Egypt. 1886, no. 5. Further correspondence respecting the affairs of Egypt. London: Harrison and Sons [1886]. iv, 96 p. f°. (Great Britain.—Parliament. Sessional papers. 1886, v. 74.) *SDD

— Egypt. 1887, no. 2. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 5, 1886.") London: Harrison and Sons [1887]. vii, 161 p. f°. (Great Britain.—Parliament. Sessional papers. 1887, v. 92.) *SDD

— Egypt. 1887, no. 9. Correspondence relating to claims of the Egyptian government and counter-claims of the British government arising from the operations in the Soudan, &c. London: Harrison and Sons [1887]. iv, 57 p. f°. (Great Britain.—Parliament. Sessional papers. 1887, v. 92.) *SDD

— Egypt. 1888, no. 2. Further correspondence respecting the affairs of Egypt. (In continuation of "Egypt no. 2, 1887.") London: Harrison and Sons [1888]. vii, 100 p. f°. (Great Britain.—Parliament. Sessional papers. 1888, v. 110.) *SDD

— Egypt. 1888, no. 7. Correspondence respecting affairs at Suakin. London: Harrison and Sons [1888]. 1 p.l., 10 p. f°. (Great Britain.—Parliament. Sessional papers. 1888, v. 110.) *SDD

— Egypt. 1888, no. 8. Further correspondence respecting affairs at Suakin. (In continuation of "Egypt no. 7, 1888.") London: Harrison and Sons [1888]. vi, 89 p. f°. (Great Britain.—Parliament. Sessional papers. 1888, v. 110.) *SDD

— Egypt. 1889, no. 1. Further correspondence respecting affairs at Suakin. (In continuation of "Egypt no. 8, 1888.") London: Harrison and Sons [1889]. iii, 46 p., 2 plans. f°. (Great Britain.—Parliament. Sessional papers. 1889, v. 87.) *SDD

— Egypt. 1892, no. 2. Correspondence respecting the re-occupation of Tokar by the Egyptian government. London: Harrison and Sons [1892]. iii, 30 p. f°. (Great Britain.—Parliament. Sessional papers. 1892, v. 96.) *SDD

— Egypt. 1898, no. 2. Correspondence with the French government respecting the valley of the upper Nile. London: Harrison and Sons [1898]. iv, 22 p. f°. (Great Britain.—Parliament. Sessional papers. 1899, v. 112.) *SDD and †XBI

— Egypt. 1898, no. 3. Further correspondence respecting the valley of the upper Nile. (In continuation of "Egypt no. 2, 1898.") London: Harrison and Sons [1898].

1 p.l., 12 p., 1 l. f°. (Great Britain.—Parliament. Sessional papers. 1899, v. 112.)

*SDD and †XBI

— Egypt. 1899, no. 1. Despatches from Her Majesty's agent and consul-general in Egypt respecting the conduct of the British and Egyptian troops after the battle of Omdurman. London: Harrison and Sons [1899]. 1 p.l., 4 p. f°. (Great Britain.—Parliament. Sessional papers. 1899, v. 112.)

*SDD and †XBI

— Egypt. 1899, no. 2. Despatch to Her Majesty's ambassador at Paris, inclosing a copy of a declaration relative to the British and French spheres of influence in Central Africa. Signed at London, March 21, 1899. London: Harrison and Sons [1899]. 4 p. f°. (Great Britain.—Parliament. Sessional papers. 1899, v. 112.)

*SDD and †XBI

— Egypt. 1899, no. 4. Return showing the expenditure for military operations in the Soudan charged on the public revenues of the United Kingdom since January, 1883. London: Harrison and Sons [1899]. 2 l. f°. (Great Britain.—Parliament. Sessional papers. 1899, v. 112.)

*SDD and †XBI

— Telegram from the adjutant-general to the forces to the general commanding in Egypt, relative to a force to be collected at Suakin. London: Harrison and Sons, 1884. 4 p. f°. (Great Britain.—Parliament. Sessional papers. 1884, v. 48.)

*SDD

Great Britain.—House of Commons. Colonel Sir Charles Wilson... Copy of a report from Colonel Sir Charles Wilson, dated the 23rd day of March, relative to the expedition under his command to Khartoum. London: H. Hansard and Son, 1885. 2 p., 1 l. f°. (Great Britain.—Parliament. Sessional papers. 1884–85, v. 46.)

*SDD

Great Britain.—Treaties. Notes exchanged between the United Kingdom and France agreeing to the ratification of the protocol defining the boundary between French Equatorial Africa and the Anglo-Egyptian Soudan, together with the protocol... London, January 21, 1924... London: H. M. Stationery Off., 1924. 21 p., 2 maps. 8°. (Great Britain.—Foreign Office. Treaty series. 1924, no. 28.)

XBDD

Great Britain.—War Office. Army (Egypt and the Soudan). Papers relating to withdrawal of troops from province of Dongola. London: Harrison and Sons [1885]. 6 p. f°. (Great Britain.—Parliament. Sessional papers. 1884–85, v. 46.)

*SDD

— Army (Medical Staff Corps in Egypt and Soudan). Return showing the... distribution and organization of Medical Staff Corps during recent campaign in Egypt and Soudan... London: H. Hansard and Son [1885]. 4 p. f°. (Great Britain.—Parliament. Sessional papers. 1884–85, v. 46.)

*SDD

Sudan — History, continued.

Great Britain. — War Office, *continued.*

— Suakim (cost of military expedition) ... London: H. Hansard and Son [1885]. 4 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 46.) * **SDD**

— Suakim-Berber railway. Agreement between the Secretary of State for War and Messieurs Lucas and Aird for the construction of a line of railway from Suakim towards Berber. London: Eyre and Spottiswoode, 1885. 5 p. f°. (Great Britain. — Parliament. Sessional papers. 1884-85, v. 46.) * **SDD**

Gregory, William H. Egypt and the Soudan. (Nineteenth century. London, 1885. 8°. v. 17, p. 424-436.) * **DA**

Griffiths, Arthur. Kitchener and Khartoum. (Fortnightly review. London, 1898. 8°. v. 70, p. 450-459.) * **DA**

Guénot, J. F. L'expédition anglo-égyptienne au Soudan. (Société de géographie de Toulouse. Bulletin. Toulouse, 1899. 8°. année 18, p. 41-102.) * **KAA**

Hake, Alfred E. See **Gordon, Charles George.**

Halim Pasha, prince. Egypt and the Soudan. (Nineteenth century. London, 1885. 8°. v. 17, p. 733-744.) * **DA**

Hanotaux, Gabriel. Fachoda. 1 map. (Revue des deux mondes. Paris, 1909. 8°. période 5, v. 49, p. 481-512, 721-755.) * **DM**

Hillelson, S. Historical poems and traditions of the Shukriya. (Sudan notes and records. Khartoum, 1920. 8°. v. 3, p. 33-75.) * **OAA**

The History of the Soudan expedition: an historical record of the events relating to the levy, despatch, and return of the New South Wales contingent raised for service in Egypt, March-June, 1885. 115 p. (In: The Australian portrait gallery. Sydney [1885]. 4°. **BHM**)

Holzmann, M. Der Mahdi. Ein Beitrag zum Problem der orientalischen Seele. (Deutsche Rundschau. Berlin, 1921. 8°. Bd. 188, p. 64-77.) * **DF**

Hornung, August. Der britische Sudan. (Die Zukunft. Berlin, 1900. 8°. Bd. 31 [Jahrg. 8], p. 344-355.) * **DF**

Huyshe, Wentworth. The making of modern Egypt and the story of the Soudan. 30 p. (Graphic. London, 1898. f°. v. 58, supplement, Sept. 24, 1898.) * **DA**

Jackson, H. C. Osman Digna. With an introduction by General Sir Reginald Wingate. London: Methuen & Co., Ltd. [1926]. xxiv, 232 p., 1 map, 1 port., 1 table. 8°. * **OFF**

— See also **Shukaîr, Na'ûm.**

Jackson, Sir H. W. Fachoda. 1898. (Sudan notes and records. Khartoum, 1920. 8°. v. 3, p. 1-11.) * **OAA**

Langford, Laura Carter Holloway. See **Gordon, Charles George.**

Lebon, André. La mission Marchand et le cabinet Méline. (Revue des deux mondes. Paris, 1900. 8°. tome 158, p. 274-296.) * **DM**

Leroy-Beaulieu, Pierre. L'organisation de notre empire africain. A propos de Fachoda. (L'Économiste français. Paris, 1898. f°. année 26, v. 2, p. 612-615.) * **TAA**

MacMichael, Harold Alfred. A history of the Arabs in the Sudan and some account of the people who preceded them and of the tribes inhabiting Dârfûr. Cambridge: University Press, 1922. 2 v. 8°. * **OFF**

Malleterre, Pierre Marie Gabriel. D'Alexandrie à Khartoum (1882-98). (Annales des sciences politiques. Paris, 1899. 8°. année 14, p. 20-44.) * **SEA (Revue)**

Margutli, Albert. Die Wiedereroberung des Sudan 1896-1898. (Strenge österreiche militärische Zeitschrift. Wien, 1899. 8°. Jahrg. 40, p. 193-248.) * **VWA**

Maud, W. T. Egypt and the Soudan in 1897-98. (Royal Society of Arts. Journal. London, 1899. 8°. v. 47, p. 57-73.) * **VA**

Maxse, F. I. The last of the dervishes. (National review. London, 1900. 8°. v. 34, p. 683-695.) * **DA**

La Mission Marchand. 1 map. (Revue de Paris. Paris, 1899. 8°. année 6, v. 3, p. 457-486.) * **DM**

Montell, A. La marche de la mission Marchand. Marchand et Kitchener à Fachoda. (Revue française de l'étranger et des colonies. Paris, 1898. 8°. tome 23, p. 653-664.) * **KAA**

Moritz, Bernhard. See **Emin Pasha.**

Mourey, Charles. De l'Atlantique au Nil. (Annales des sciences politiques. Paris, 1899. 8°. année 14, p. 45-67.) * **SEA (Revue)**

Nogues, A. A propos d'Omdurman et de Fachoda. (Revue française de l'étranger et des colonies. Paris, 1898. 8°. tome 23, p. 644-652.) * **KAA**

Ohrwalder, Joseph. Ten years' captivity in the Mahdi's camp 1882-1892 from the original manuscripts of Father Joseph Ohrwalder... by Major F. R. Wingate. With maps and illustrations by Walter C. Horsley. London: Sampson Low, Marston & Company, 1892. xiii p., 1 l., 460 p., 2 maps, 1 plan, 1 pl. 8°. * **BLC**

— London: Sampson Low, Marston & Company, 1895. xvi, 471 p., 1 pl. Revised and abridged edition. 12°. * **BLH**

Sudan — History, continued.

Ohrwalder, Joseph. Ten years' captivity, *continued.*

— London: Sampson Low, Mars-
ton & Co., 1898. iv, 5–128 p. Popular edition.
8°. **BKB p.v.11**

POLIGNAC, de. ... France & islamisme. Dix
ans de captivité dans le camp du mahdi par
le major F. R. Wingate. Alger: L. Remordet
& Cie [1893]. 52 p., 1 map. 8°.

DBA p.v.68, no.2

Omdurman sous la domination mahdiste.
(Revue de l'Islam. Paris, 1902. 4°. tome 7,
p. 59–62.) **†* OAA**

Oppenheim, L. The Tirah and Khartoum
expeditions. (Nineteenth century. London,
1898. 8°. v. 44, p. 1041–1047.) *** DA**

Palat, Barthélemy Edmond. Campagne
des Anglais au Soudan (1884–1885). (Journal
des sciences militaires. Paris, 1893. 8°. série
9, tome 49, p. 512–536; tome 50, p. 303–327;
tome 51, p. 316–334; tome 52, p. 137–158, 300–
310, 413–444.) **VWA**

Palmieri, Aurelio. La questione del Sudan
ed il conflitto anglo-egiziano. (Politica.
Roma, 1924. 8°. v. 20, p. 118–149.) **SEA**

Penfield, Frederic Courtland. What the
crushing of Mahdism signifies. (Forum.
New York, 1900. 8°. v. 28, p. 708–718.) *** DA**

Pimblett, W. Melville. Story of the Sou-
dan war. From the rise of the revolt, July,
1881, to the fall of Khartoum and death of
Gordon, Jan., 1885. London: Remington &
Co., 1885. 2 p.l., xii, 276 p. 8°. **BLH**

Poncet, L. L'artillerie à la bataille d'Om-
durman. (Revue d'artillerie. Paris. 1898.
8°. tome 53, p. 426–440.) **VWA**

Rafi al-Din, Ahmad. The battle of Omdur-
man and the Mussulman world. (Nineteenth
century. London, 1898. 8°. v. 44, p. 688–
696.) *** DA**

Renty, E. de. Le Soudan égyptien et le
protectorat du Somaliland. (Questions diplo-
matiques et coloniales. Paris, 1908. 8°. tome
26, p. 16–29.) **BAA**

Rhodes, Francis William. *See Churchill,*
Winston Leonard Spencer.

Robinson, Arthur E. The Egyptian-Abys-
sinian war of 1874–1876. (African Society.
Journal. London, 1927. 8°. v. 26, p. 263–
280.) **BKA**

— The Mamelukes in the Sudan. (Sudan
notes and records. Khartoum, 1922. 8°. v. 5,
p. 88–94.) *** OAA**

— Nimr, the last king of Shendi. (Sudan
notes and records. Khartoum, 1925. 8°. v.
8, p. 105–118.) *** OAA**

— The rulers of the Sudan since the
Turkish occupation until the evacuation by
order of the Khedive. (African Society. Jour-
nal. London, 1924. 8°. v. 24, p. 39–49.) **BKA**

Roeder, Günther. Die Geschichte Nubiens
und des Sudans. (Klio. Beiträge zur alten
Geschichte. Leipzig, 1912. 4°. Bd. 12, p. 51–
82.) **†† BAE**

Shukaïr, Na'ûm. Black ivory and white;
or, The story of el Zubeir Pasha, slaver and
sultan, as told by himself; translated and put
on record by H. C. Jackson. Oxford: B. H.
Blackwell, 1913. 3 p.l., iv, 118 p. 12°. *** OFS**

— Ez-Zibër Rahmet Paschas Autobi-
ographie; ein Beitrag zur Geschichte des Sud-
dan von Lic. Dr. Martin Thilo. Bonn: K.
Schroeder, 1921. 80 p. 8°. *** OAC p.v.34**

— The history & geography of the Su-
dan. By Naum Shoucair Bey... Cairo, 1903.
3 v. in 1. 8°. *** OFZ**

v. 1. The geography of the Sudan.
v. 2. The ancient history of the Sudan.
v. 3. The modern history of the Sudan.

Smith, H. F. Harrison. The pacification
of the Sudan. 1 map. (Asiatic quarterly re-
view. London, 1887. 8°. v. 3, p. 77–92.)

*** OAA**

Souvenirs de Fachoda. (Revue française
de l'étranger et des colonies. Paris, 1904.
8°. tome 29, p. 583–597.) **KAA**

Stanley, Sir Henry Morton. *See Emin*
Pasha.

Steevens, George Warrington. With
Kitchener to Khartoum. New York: Dodd,
Mead & Company, 1900. xiv p., 1 l., 326 p.,
1 map, 1 plan. 12°. **BLC**

Der Streit um Faschoda. (Jahrbuecher für
die deutsche Armee und Marine. Berlin,
1899. 8°. v. 110, p. 86–91.) **VWA**

Suakin, 1885, being a sketch of the cam-
paign of this year, by an officer who was
there. London: Kegan Paul, Trench & Co.,
1885. 4 p.l., 272 p. 12°. **BLB**

Sword, W. Dennistoun. *See Alford, Henry*
S. L., and W. DENNISTOUN SWORD.

Tal'at, Mahmûd. Gharâyib al-zamân fi
fath al-Sūdân. [An account of the reconquest
of the Sudan.] Cairo, 1896. 167 p., 1 pl. 8°. *** OFP**

Thilo, Martin. *See Shukaïr, Na'ûm.*

Tourelle, C. Le mahdisme au Soudan.
(Société de géographie de Rochefort. Buletin.
Rochefort, 1899. 8°. v. 21, p. 253–257.) **KAA**

Toynbee, Arnold Joseph. The status of the
Anglo-Egyptian Sudan 1922–5. (In his: The
Islamic world since the peace settlement.
Oxford, 1927. 8°. p. 232–253.)

BAA (Survey)

Survey of international affairs, 1925, v. 1.

Sudan — History, continued.

Trail, Henry Duff. England, Egypt and the Sudan. New York: E. P. Dutton & Co. [1900.] 3 p.l., 242 p., 4 maps. 8°. **BLB**

Vasco, Gabriel. Le mahdisme au Soudan. (Revue française de l'étranger et des colonies et exploration. Paris, 1896. 8°. tome 21, p. 231-237.) **KA**

Vatin, Fernand. La vérité sur Fachôda (1840-1872-1898), préface de M. Lucien Hubert. Chaumont: Andriot frères, 1923. 88 p., 1 map. 4°. **BAC p.v.101, no.10**

Verme, Luchino dal. La disfatta dei mahdisti. (Nuova antologia. Roma, 1898. 8°. serie 4, v. 77, p. 631-656.) **NNA**

Wilson, Sir Charles William. What is to be done with the Sudan? (Asiatic quarterly review. London, 1886. 8°. v. 1, p. 297-326.) * **OAA**

Watson, Sir Charles Moore. The life of Major-General Sir Charles William Wilson, Royal Engineers. London: J. Murray, 1909. xv, 419 p., 5 maps, 15 pl., 2 ports. 8°. **AN**

Wingate, Sir Francis Reginald, 1. bart. Mahdiism and the Egyptian Sudan. Being an account of the rise and progress of Mahdiism, and of subsequent events in the Sudan to the present time. London: Macmillan & Co., 1891. xxviii, 617 p., 14 maps, 16 plans. 8°. **BLC**

— The rise and wane of the Mahdi religion in the Sudan. (International Congress of Orientalists, 9th, London, 1892. Transactions. London, 1893. 4°. v. 2, p. 339-359.) * **OAA**

— See also **Ohrwalder**, Joseph.

Wright, H. C. Seppings. Soudan, '96. The adventures of a war artist. London: Horace Cox, 1897. 1 p.l., iv-vi p., 1 l., 108 p., 7 pl. 12°. **BLC**

LIBYAN DESERT

For the archaeology see the list on **ANCIENT EGYPT**.

Ascherson, Paul. Bemerkungen zur Karte meiner Reise nach der Kleinen Oase in der Libyschen Wüste. 1 map. (Gesellschaft für Erdkunde zu Berlin. Zeitschrift. Berlin, 1885. 8°. Bd. 20, p. 110-160.) **KA**

— Die Bewohner der Kleinen Oase in der Libyschen Wüste. (Zeitschrift für Ethnologie. Berlin, 1876. 8°. Bd. 8, p. 343-358.) **QOA**

Azadian, A. L'oasis de Siouah et ses sources. 2 pl. (Institut d'Égypte. Bulletin. Le Caire, 1927. 8°. tome 9, p. 105-114.) * **EY**

Ball, John. Notes on recent determinations of geographical positions in the Libyan desert. Cairo: Government Press, 1919. 2 p.l., 15 p. 4°. (Egypt.—Survey Department. Survey Department paper no. 34.) **PRV (Egypt)**

Beadnell, Hugh John Llewellyn. The sand-dunes of the Libyan desert. 2 pl. (Geographical journal. London, 1910. 8°. v. 35, p. 379-395.) **KA**

Collet, Léon W. L'oasis de Kharga dans le désert Libyque. 3 pl. (Annales de géographie. Paris, 1926. 8°. tome 35, p. 527-534.) **KA**

Hug, Georges. L'oasis de Khargah et le désert Libyque d'après un article récent. (Société royale de géographie d'Égypte. Bulletin. Le Caire, 1927. 8°. tome 15, p. 51-57.) **KA**

Forbes, Rosita Torr. Across the Libyan desert to Kufara. 1 map, 4 pl. (Geographical journal. London, 1921. 8°. v. 58, p. 81-101, 161-178.) **KA**

— The secret of the Sahara: Kufara. London: Cassell and Co., Ltd., 1921. xvi, 350 p., 1 map, 56 pl. 8°. **BKS**

Gautier, E. F. Déserts comparés. (Annales de géographie. Paris, 1919. 8°. tome 28, p. 401-413.) **KA**

Georgiadès, N. Analyse chimique de six échantillons d'eau de puits prélevés pendant l'expédition scientifique de...le prince Kemal Eddin Hussein au désert Libyque en janvier 1925. (Institut d'Égypte. Bulletin. Le Caire, 1926. 8°. tome 8, p. 135-141.) * **EY**

Gruenau, Kurt Otto Werner. Bericht über meine Reise nach Siwah. (Gesellschaft für Erdkunde. Zeitschrift. Berlin, 1899. 8°. Bd. 34, p. 271-280.) **KA**

Hassanein, Ahmed Mohammed. The lost oases...being a narrative account of the author's explorations into the more remote parts of the Libyan desert and his rediscovery of two lost oases. With an introduction by the Right Honorable Sir James Rennell Rodd... Illustrated with an original map, and from many photographs made by the author. New York: Century Co. [1925.] xxiii, 363 p., 1 map, 65 pl. 8°. **BKT**

Hohler, T. B. Report on the oasis of Siva. Cairo: [London, Waterlow and Sons, Ltd., printers,] 1900. 50 p., 9 pl. ob. 12°. **BLF**

Hoskins, G. A. Visit to the great oasis of the Libyan desert; with an account, ancient and modern, of the oasis of Amun, and the other oases now under the dominion of the pasha of Egypt. London: Longman, Rees,

Libyan Desert, continued.

Hoskins, G. A., continued.

Orme, Brown, Green & Longman, 1837. 10, xi-xvi, 338 p., 1 map, 20 pl. 8°.

Stuart 7017 and BLE

Ideler, Julius Ludwig. Ueber die Oasen der Libyschen Wüste. (Fundgruben des Orients. Wien, 1814. f°. Bd. 4, p. 393-421.)

†* **OAC**

Jennings-Bramly, Wilfred. A journey to Siwa in September and October, 1896. (Geographical journal. London, 1897. 8°. v. 10, p. 597-608.)

KA A

Jomard, Edme François. Remarques sur l'oasis de Syouah ou de Jupiter Ammon. Suivies d'une relation de M. James Hamilton. (Société de géographie. Bulletin. Paris, 1858. 8°. série 4, tome 15, p. 41-61.)

KA A

Jordan, W. Die geographischen Resultate der von G. Rohlfs geführten Expedition in die Libysche Wüste. Berlin: C. G. Lüderitz, 1875. 32 p., 1 map. 8°. (Sammlung gemeinverständlicher wissenschaftlicher Vorträge. Serie 10, Heft 218.)

* **C**

Kahle, Paul. Die Aulād-'Ali-Bedüinen der Libyschen Wüste. (Der Islam. Strassburg, 1913. 8°. Bd. 4, p. 355-386.)

* **OAA**

Kemal el-Din Hussein, prince. A la recherche des vestiges laissés par l'expédition Rohlfs dans le désert Libyque. (Institut d'Égypte. Bulletin. Le Caire, 1925. 8°. tome 7, p. 53-61.)

* **EY**

King, William Joseph Harding. The Fara-fra depression and Bu Mungar Hattia. 1 map, 1 pl. (Geographical journal. London, 1913. 8°. v. 42, p. 455-461.)

KA A

— **Mysteries of the Libyan desert; a record of three years of exploration in the heart of that vast & waterless region.** London: Seeley, Service & Co., Limited, 1925. 348 p., 2 maps, 16 pl. 8°.

BKT

— **Travels in the Libyan desert.** 1 map. (Geographical journal. London, 1912. 8°. v. 39, p. 133-137.)

KA A

Kumm, H. K. W. Die südliche Karawanenroute von der Oase Charga nach Dachla (Darb-er-Rubari). (Petermanns Mittheilungen. Gotha, 1902. 4°. Bd. 48, p. 110-112.)

KA A

Rohlfs, Gerhard. Kufra. Reise von Tripolis nach der Oase Kufra. Ausgeführt im Auftrage der Afrikanischen Gesellschaft in Deutschland. Nebst Beiträgen von P. Ascherson, J. Hann, F. Karsch, W. Peters, A. Stecker. Leipzig: F. A. Brockhaus, 1881. viii p., 1 l., 560 p., 1 l., xxi p., 3 maps, 7 pl. 8°.

BKS

— **Mein Itinerar durch die Libysche Wüste.** 1 map. (Gesellschaft für Erdkunde zu Berlin. Zeitschrift. Berlin, 1871. 8°. Bd. 6, p. 367-371.)

KA A

Bemerkungen zur Karte des Libyschen Wüstenplateau's, von H. Kiepert, p. 371-383.

— **See also Jordan W.; Kemal el-Din Hussein, prince.**

Schweinfurth, Georg August. Notizen zur Kenntniss der Oase el-Chargeh. (Petermanns Mittheilungen. Gotha, 1875. 4°. Bd. 21, p. 384-393.)

KA A

Stanley, C. V. B. The oasis of Siwa; the Siwan language and vocabulary, proper names, Siwan money, weights and measures. 1 map, 2 pl. (African Society. Journal. London, 1911-12. 8°. v. 11, p. 290-324, 438-457.)

BKA

Strenger, Ferdinand. Strabos Erdkunde von Libyen. Berlin: Weidmann, 1913. 4 p.l., 140 p. 8°. (Quellen und Forschungen zur alten Geschichte und Geographie. Heft 28.)

KAD

Sykes, Godfrey. A journey in the Libyan desert. (American Geographical Society. Bulletin. New York, 1912. 8°. v. 44, p. 721-745.)

KA A

Walker, W. Seymour. The Siwi language; a short grammar of the Siwi language, with a map and ten appendices, including a brief account of the customs, etc., of the Siwani, together with a description of the oasis of Siwa... London: Kegan Paul, Trench, Trubner & Co., Ltd., 1921. 96 p., 2 pl. 8°.

* **OEZA**

White, Arthur Silva. From sphinx to oracle; through the Libyan desert to the oasis of Jupiter Ammon. London: Hurst and Blackett, Ltd., 1899. xv, 277 p., 2 maps, 20 pl. 8°.

BKT

Zenker, W. Ueber das Depressionsgebiet der Libyschen Wüste und den Fluss ohne Wasser (Bahr-belâ-mâ). (Gesellschaft für Erdkunde. Zeitschrift. Berlin, 1872. 8°. Bd. 7, p. 209-219.)

KA A

CIRCULATION STATISTICS FOR THE MONTH OF MARCH, 1929

BRANCHES	CIRCULATION		NEW REGISTRA- TIONS	VOLUMES ACCES- SIONED
	HOME USE (VOLUMES)	READERS OF REFERENCE BOOKS		
MANHATTAN				
Central Building:				
Central Circulation -----	60,786	-----	924	635
Children's Room -----	3,305	2,955	43	54
Extension Division* -----	83,897	-----	1,349	1,015
Library for the Blind -----	3,455	-----	15	133
East Broadway, 33 -----	11,943	3,147	199	266
East Broadway, 192 -----	29,927	7,772	365	757
Rivington street, 61 -----	21,498	6,343	217	607
East Houston street, 388 -----	23,420	6,082	316	234
Leroy street, 66 -----	12,374	3,036	244	247
8th street, 135 Second avenue -----	15,996	3,269	221	184
10th street, 331 East -----	26,126	3,926	361	297
13th street, 251 West -----	12,148	2,156	150	142
23rd street, 228 East -----	11,256	4,124	192	202
23rd street, 209 West -----	13,590	5,495	291	309
36th street, 303 East -----	11,556	3,610	162	167
40th street, 457 West -----	10,451	1,494	119	174
50th street, 564 Lexington avenue -----	11,092	3,159	158	172
51st street, 742 Tenth avenue -----	12,861	714	152	190
58th street, 121 East -----	13,621	2,400	296	307
58th " 121 " Music Library -----	3,436	2,963	-----	57
67th street, 328 East -----	18,444	3,047	286	716
69th street, 190 Amsterdam avenue -----	18,166	4,014	309	202
77th street, 1465 York avenue -----	21,675	3,643	207	555
79th street, 222 East -----	20,768	8,006	371	442
81st street, 444 Amsterdam avenue -----	20,365	2,646	350	322
96th street, 112 East -----	30,992	3,503	397	473
100th street, 206 West -----	22,939	1,835	412	448
110th street, 174 East -----	29,407	4,390	619	339
115th street, 203 West -----	19,299	2,108	359	335
124th street, 9 West -----	14,224	2,487	232	371
125th street, 224 East -----	11,099	1,971	181	324
125th street, 518 West -----	22,056	3,080	292	272
135th street, 103 West -----	16,488	4,135	395	263
145th street, 503 West -----	25,054	2,592	316	240
St. Nicholas avenue, 1000 -----	21,196	2,654	266	207
179th street, 535 West -----	30,724	6,169	562	314
THE BRONX				
140th street, 321 East -----	26,296	5,879	439	590
Morris avenue, 910 -----	21,860	4,622	331	429
160th street, 761 East -----	39,790	6,609	277	473
168th street, 78 West -----	17,304	3,915	304	225
169th street, 610 East -----	37,051	7,227	558	465
176th street and Washington avenue -----	42,257	7,089	785	1,147
Bainbridge avenue, 2556 -----	46,698	5,118	1,050	495
Kingsbridge avenue, 3041 -----	10,057	2,141	174	83
RICHMOND				
St. George -----	10,083	2,542	151	248
Port Richmond -----	14,258	2,947	195	122
Stapleton -----	9,161	3,947	111	195
Tottenville -----	6,620	1,203	49	75
Totals -----	1,017,069	172,164	15,752	16,519

* In addition 2,102 books were read at agencies of the Extension Division.

PRINCIPAL DONORS IN MARCH, 1929

	VOLS.	PMS.		VOLS.	PMS.
Academia das Ciências de Lisboa	2		Ingalls, Walter Renton (22 periodicals)	18	12
Altman, Robert M., and Mrs. Edith			Ireland, Gordon (9 periodicals)	2	
Altman Stern (5000 portraits)	17		Italy. Italian Embassy in the United States	2	
Amerika-Institut	1		Johore. General Adviser to the Government	1	
Anderson, A. M.	1		Kemper, James P.	1	
Augustana College & Theological Seminary	23	18	Kenya Colony and Protectorate	3	12
Baden. Badische Wasser- und Strassenbaudirektion	4	2	Keogh, Mrs. James B.	18	
Baden. Statistisches Landesamt	2	9	Kletsch, Ernest		2
Baron, Solomon L. (1 manuscript)			Koeffler, Harry	6	
Basinger, Miss Frances E. (29 sheets)			Kniga. Buch und Lehrmittelgesellschaft	1	
Ben-Jevie, I.		3	Krishnamurti, Jiddu		1
Berlin. Stadtarchiv	1		Kuper, Theodore Fred.		6
Brazil. Ministerio da Justica e Negocios Interiores	4	2	Lavoie, Joseph A.	1	
British Columbia. Provincial Library	1		Lehman, Philip	1	
Brown, Prof. Harry Philip	1	1	Leigh, W. R. (2 photographs)		
Buenos Aires. Biblioteca Nacional	3	1	Lichtenstein, Rabbi Morris	1	
Burk, Rev. W. Herbert		1	Lyle, Mrs. Henry Hamilton Moore	12	
Burowick, C.		3	Machen, H. B. (8 periodicals)	34	2
Butler, Willard P. (89 periodicals)			Magyar Királyi Erzsébet Tudományegyetem	1	7
Calcutta. Corporation Secretary	2		Markle, John	1	
České Akademie věda Umění	6	3	Masarykovy University	3	8
Charloff, Cantor Boris		2	Matsunami, Dr. N.	1	1
Charney, Samuel (38 periodicals, 2 calendars)	10		Mayhew, Miss Kate (1 periodical, 10 play-bills, 1 calendar)	1	5
Chilton Class Journal	2		Montague, Dr. J. E.	3	
Coburn, Miss Dorothy Davis	1		Order of Colonial Lords of Manors in America		3
Colombia. Ministerio de Correos y Telegrafos	1		Phillips, Frederic Nelson, Inc.	1	
Colombia. Ministerio de Hacienda y Credito Publico	7	2	Piccione, Enrico		2
Colony Club	103	6	Portugal. Ministerio das Financas	4	
Cornell, Miss Mary Emily	1		Prowse, G. R. F.		2
Costa Rica. Secretaria de Relaciones Exteriores	1		Publicidad Hispanica	1	
Czechoslovak Literary Society	1		Red International of Labour Unions		2
Czechoslovakia. Bibliothèque de l'Assemblée Nationale	5		Royce, William H.	1	
Day, Mrs. Benjamin M. (120 periodicals)	2		Sherry, Louis, Inc.		1
Durant, W. C.	1		Sociedad de Estudios Vascos	1	
Eesti Tarvitajateühisuste Keskühisus		11	Strassbourg. Le Maire	1	
Fleisher, B. W.	1		Tunis. Direction Générale de l'Agriculture, du Commerce et de la Colonisation	1	
France. Ministère de l'Instruccion Publique et des Beaux-Arts	16	3	Turkey. Office Central de Statistique	2	1
Garcia Arias, Dr. Rodolfo (6 colored prints)	6	19	Tyler, James Hoge	1	
Germany. Reichstagsbureau	7	21	Van Sideren, Howard	12	10
Hartsoff, M.	4		Walton, Perry (1 photograph)		
Helsingfors. Finland. Stads Statistiska Kontor	2		Webster, Albert L. (106 periodicals, 2 maps)	23	111
Hudson River Day Line (249 periodicals)	51	42	Welcher, The Misses (2 prints)		
			Wharey, Prof. James Blanton	1	
			Wilson, Hardy	1	
			Zadig, Bertrand (2 prints)		

PUBLICATIONS OF THE NEW YORK PUBLIC LIBRARY

(Now in Print)

HISTORY AND GUIDES

	PRICE
History of The New York Public Library, by H. M. Lydenberg. 1923	\$2.00
Handbook of The New York Public Library	.25
Central Building Guide	.05
Questions About Your Library (General Information about the Library)	Free
For Sightseers. Central Building	Free

PERIODICALS

Annual Report of The New York Public Library. (A limited number are given free upon request.)

Bulletin of The New York Public Library. Published monthly. Chiefly devoted to the Reference Department. Bibliography, news of the Library, reprints of manuscripts, descriptions of new accessions. \$1.00 a year; current single numbers for 10 cents. Back numbers at advanced rates.

Branch Library Book News. A selected list of new additions to the Circulation Department, with other lists and articles. Published monthly, except in July and August. For sale at the Branches and at the Inquiry Desk. 2 cents a copy; 25 cents a year, postpaid.

New Technical books. A selected list of books on industrial arts and engineering, recently added to the Library. Published quarterly. 25 cents a year, postpaid.

Municipal Reference Library Notes. Published weekly except during July and August, for circulation among the officials and employees of the City of New York. Price: \$2.00 a year; 5 cents a copy. Apply at Room 512, Municipal Building.

LIST OF BOOKS IN THE LIBRARY RELATING TO VARIOUS TOPICS, TEXTS PRINTED FROM MANUSCRIPTS OWNED BY THE LIBRARY, ETC.

REFERENCE DEPARTMENT

	PRICE		PRICE
Alice in Wonderland; the manuscript and its story. 1928	.10	Automobile Tires. A list of references. 1923	.10
Almanacs, A list of New York, 1694-1850. 1921	1.00	Avery Collection, Handbook of. 1901. 84 p.	.50
American Historical Prints, Early Views of American Cities, etc. 1927	.50	Avery Collection, Handbook of— Supplement: Additions of Prints, 1901-1920. 1921	.15
American Interoceanic Canals. A list of references. 1916	.30	Avesta and Romani, by Albert Thomas Sinclair. 1916	.05
Armenia and the Armenians. A list of references. 1919	.30	Beaumarchais, Editions of, in New York City. 1925	.15
Article of Faith, An, by Hiller C. Wellman. 1919	.05	Behind the Magician's Curtain—An Exhibition of Books and Prints Relating to Conjuring and Magic—by John Mulholland (illustrated) 1928	.05
Assyria and Babylonia. A list of references. 1918	.45	Berlin and the Prussian Court in 1798. From a ms. journal of Thomas Boylston Adams. 1916	.15
Astor Library, Catalogue of the. 8 volumes. Sewed. Per volume	5.00		

	PRICE		PRICE
Billings, Dr. John Shaw, Memorial Meeting in honor of the late. 1913	.10	Greenwood, John, an American-born Artist. 1927	.25
City Planning and Allied Topics, Select list of works relating to. 1913	.15	Gypsies in Carniola and Carinthia, by Albert Thomas Sinclair. 1917	.05
Clinton, General George, Calendar of Messages & Proclamations of, 1777-1781. 1927	.25	Gypsies of Monastir, by Rev. Lewis Bond. 1917	.05
Color Photography. 1924	.75	Henry George and the Single Tax. 1926	.50
Columbus. Letter of Columbus on the discovery of America. Facsimile of the pictorial edition, with a new and literal translation, and a complete reprint of the four oldest Latin editions. 1892. Cloth	.50	Historical Printing Club, Publications of the. (List and prices furnished upon application.)	
Commencement Addresses by Stephen H. Olin and Carl B. Roden. 1924	.10	Historical Prints and Early Views of American Cities. Catalogue of exhibition. 1917	.05
The Compensations, by Asa Don Dickinson. 1922	.05	Holcroft, Thomas, A Bibliography of. By Elbridge Colby. 1922	.60
Cruise of the U. S. Brig <i>Argus</i> in 1813. Journal of Surgeon James Inderwick. 1917	.10	Holt, John — Printer and Postmaster. 1920	.10
Declaration of Independence, Exhibition commemorating the 150th anniversary of the adoption of. 1927	.25	The Hornbook. 1927	.15
The Development of Scenic Art and Stage Machinery (Revised, with Additions) 1928	2.50	Hudson, Henry, The Hudson River, Robert Fulton and Steam Navigation, List of prints, books, manuscripts, etc., relating to. 1909	.30
Early American Children's Books, 1682-1840. 1927	.05	A Hundred Years of Grand Opera in New York, 1825-1925. A record of performances. 1927	1.00
Early Library Development in New York State. By George Watson Cole. 1927	.10	The Illustrated Book. Notes on an exhibition. 1919	.15
Egypt, Ancient. Sources of information. 1925	2.75	Illustrated Books of the Past Four Centuries. A record of the exhibition in 1919. 1920	.50
Emmet Collection of Mss., Prints, etc., Catalogue of. Sheets. 1900	5.00	Inks, Chemistry and Manufacture of. 1926	.75
Eno Collection of New York City Views. 1925	.75	Insulating Oil. A list of references. 1927	.50
Ethiopica and Amharica. 1928	.75	Inventory of the Rensselaerswyck Manuscripts. 1924	.25
Federal Reserve Banking System. A bibliography. 1928	.50	Irvingiana, The Seligman Collection of. 1926	.25
First Year of Printing in New-York, May, 1693 to April, 1694. By Wilberforce Eames. 1928	.50	Isle de Bourbon (Réunion) Documents, 1701-1710. Printed from the original manuscript in the Library. 1909	.20
Flatboating on the Yellowstone, 1877. By Fred G. Bond. 1925	.25	The Jewish Division in the Reference Department, 1927. 1928	Free
Gardens & Gardening. A selected list of books. 1927	.10	Jewish Life in Oriental Countries. A list of books and manuscripts exhibited. 1927	.10
Geology, Mineralogy and Palæontology of New Jersey, List of works on. 1916	.15	Journalism. A bibliography. 1924	2.00
Ginsburg's Massoretic Bible. 1928	.05	Joys of Librarianship, by Arthur E. Bostwick. 1918	.05

	PRICE		PRICE
Kennan Collection. By Abraham Yar- molinsky. 1921	.10	Persia, List of works relating to. 1915 .	.50
Latin-American Periodicals Current in the Reference Department. 1920 .	.05	The Petworth Manuscript of "Grace Dieu" or "The Pilgrimage of the Soul"; an English illuminated manu- script of the fifteenth century. 1928 .	.15
Letters of American Clergymen, 1711 to 1860. 1917	.05	The Photostat in Reference Work. 1925	.15
Letters of American Physicians and Surgeons. 1919	.05	The Pilgrim's Progress; John Bunyan, his Life and Times. An exhibition. 1929	.15
The Librarian Himself, by H. L. Koop- man. 1916	.05	The Pitcairn Bible. 1924	.15
Librarian as a Unifier, by Andrew Keogh. 1915	.05	Provençal Literature & Language. 1925	3.00
Library Tonic, by George Parker Win- ship. 1917	.05	Remington, Frederic, Chronicler of the Vanished West. 1929	.10
Livre du Petit Artus. Illuminated manu- script presented by Mr. Edward S. Harkness. 1928	.15	Robinson Locke Dramatic Collection. 1925	.10
Lycanthropy. A list of works. 1920 .	.05	Romani and Dard, by George F. Black. 1916	.05
Macpherson's Ossian and the Ossianic Controversy. A contribution to- wards a bibliography. 1926 . . .	.25	Russian, other Slavonic and Baltic Periodicals. A list of. 1916 . . .	.15
The Manuscript Division, by Victor Hugo Paltsits. 1915	.15	Schoolroom Decoration. A list of refer- ences. 1917	.05
Music Publishers in New York City before 1850. A directory. 1917 .	.10	Scotland. A list of works. 1916 . . .	3.00
Nationalization of Coal Mines. 1920 .	.10	Seal-Prints and a Seal-Paste-Print of the Fifteenth Century, by T. O. Mabbott. 1928	.20
Naval Architecture and Shipbuilding. A list of references. 1919	.20	Shakespeareana, Catalogue of Exhibi- tion of, compiled by Henrietta C. Bartlett. 1916	1.00
The New York Parks Exhibition. 1928	.05	The Soul of the Library, by J. I. Wyer. 1923	.05
The New York Public Library and the Business Man. 1923	Free	Spalding Baseball Collection. 1922 .	.20
The New York Tercentenary. An ex- hibition of the history of New Netherland, 1524-1674. 1926 . . .	.30	The Spencer Collection of Illustrated Books. 1928	1.00
Newspapers and Official Gazettes, Checklist of. 1915	1.85	Starches. A list of references. 1927 .	2.00
Numismatics. List of works. 1914 . .	.65	Stauffer Print Collection, by Charles Allen Munn. 1916	.05
One Hundred Notable American En- gravers. 1928	.50	Storage Batteries. A list of references, 1900-1915. 1915	.15
Opera Plots, Index to. 1927	.75	Submarines. A list of references. 1918 .	.35
Orlando Gibbons Tercentenary, by Jeffrey Mark. 1926	.15	Superstructures, by W. N. C. Carlton. 1918	.05
Oxy-Acetylene Welding. List. 1914 .	.15	A Thirteenth Century Illuminated Man- uscript, by Dr. Hanns Swarzenski. 1928	.15
Pageants in Great Britain and the United States. A list of references. 1916	.15	Tilden, S. J. Letters and Literary Me- morials, edited by John Bigelow. 2 v. 1908	6.00
Paintings, Catalogue of, in the picture galleries of the Library. 1927 . . .	.10	Tilden, S. J. Writings and Speeches, edited by John Bigelow. 2 v. 1885	6.00

	PRICE		PRICE
Timothy Dexter and His "Pickle for the Knowing Ones." 1922	.15	What did Macaulay Say About America? Text of four letters to Henry S. Randall. 1925	.40
To Nebraska in '57. A Diary of Erastus F. Beadle. 1923	2.00	What's the Matter with the Public Library? By E. L. Pearson. 1922 .	Free
Torpedoes. A list of references. 1917 .	.30	Why They Came to the Library. 1920 .	Free
Transliterations from Hebrew Characters. 1929	Free	Winthrop, Theodore. Bibliographical notes on, by Elbridge Colby. 1917	.05
War Memorials. A list. 1919	.05	Winthrop Books, Plates of the, by Elbridge Colby. 1918	.05
War Taxation, 1914-1917. A list of references. 1917.	.05		
Washington Eulogies. A checklist. 1916	.25		

MUNICIPAL REFERENCE LIBRARY

Publications to be obtained at the Municipal Reference Library, Room 512, Municipal Building

	PRICE
Guide Posts on the Road to Health; A list of books	.10
Teaching Citizenship via the Movies. A survey of civic motion pictures	.10
Visualizing Citizenship	.15
What to Read on New York City Government. A list of references	.05

CIRCULATION DEPARTMENT

Publications to be obtained at any Branch Library, or from the Chief of the Circulation Department, Fifth Avenue and Forty-second Street. Publications given free unless otherwise stated.

Branch Library Book News. *See* Periodicals.

LISTS OF BOOKS FOR ADULTS

Altman Collection

Books of Interest to Women Voters

Catalogue of Books for the Blind in Braille. Grades One, Two and Three. November, 1921; Supplements, September, 1927, May, 1928

Catalogue of Books for the Blind in Braille. Grade One-and-a-Half. November, 1921; Supplements, September, 1927, May, 1928

Catalogue of Books for the Blind in the Moon type. November, 1921; Supplement, February, 1928

Catalogue of Music for the Blind. Music Scores in the American Braille and New York Point Types. Supplement

Catalogue of Music Scores in the Braille Type. July, 1922; Supplement, October, 1926

Children's books suggested as holiday gifts. 1927, 1928

Fairy Tales for Grown-up Readers

List of Piano Music

Military Training

"The New York of the Novelists"

Plays of Thirteen Countries

Poetry of the Supernatural

Polish Book List

Romans à Clef; A List of Novels with Characters based on Real Persons. 2 cents

Sailor's Yarns. 2 cents

Stories. A list of stories to tell and to read aloud. 25 cents

Stories of Romance and Imagination

Stories of the Sea. 5 cents

Wanderers and Vagabonds

LISTS FOR CHILDREN

Favorite Stories of the Library Reading Clubs

Journeys to Foreign Lands

LISTS FOR ADULTS AND CHILDREN

New York City and the Development of Trade

Sea and Shore

The Shakespearian Festival

BOARD OF TRUSTEES

W. VINCENT ASTOR
 GEORGE F. BAKER, JR.
 JOHN H. FINLEY
 SAMUEL GREENBAUM
 EDWARD S. HARKNESS
 PATRICK CARDINAL HAYES
 ARTHUR CURTISS JAMES

GRENVILLE KANE
 LEWIS CASS LEDYARD
 JOHN G. MILBURN
 J. PIERPONT MORGAN
 MORGAN J. O'BRIEN
 WILLIAM BARCLAY PARSONS

FRANK L. POLK
 WILSON M. POWELL
 ELIHU ROOT
 EDWARD W. SHELDON
 I. N. PHELPS STOKES
 HENRY WALTERS
 BRONSON WINTHROP

JAMES J. WALKER, Mayor of the City of New York, *ex officio*
 CHARLES W. BERRY, Comptroller of the City of New York, *ex officio*
 JOSEPH V. MCKEE, President of the Board of Aldermen, *ex officio*

OFFICERS

President, LEWIS CASS LEDYARD, Fifth Avenue and 42nd Street.

First Vice-President, ELIHU ROOT.

Second Vice-President, FRANK L. POLK.

Secretary, FRANK L. POLK.

Treasurer, EDWARD W. SHELDON, 45 Wall Street.

Assistant Treasurer, UNITED STATES TRUST COMPANY, 45 Wall Street.

Director, EDWIN H. ANDERSON, Fifth Avenue and 42nd Street.

Assistant Director, H. M. LYDENBERG, Fifth Avenue and 42nd Street.

Chief of the Reference Department, KEYES D. METCALF, Fifth Ave. and 42nd St.

Chief of the Circulation Department, FRANKLIN F. HOPPER, Fifth Ave. and 42nd St.

Editor, ROBERT R. FINSTER, Fifth Avenue and 42nd Street.

BUILDINGS AND BRANCHES

CENTRAL BUILDING, Fifth Ave. & 42nd St., contains general administrative offices of the whole system, all Divisions of the Reference Department, and the Central Circulation Branch, Central Children's Room, Library for the Blind, and the Extension Division.

MUNICIPAL REFERENCE BRANCH, Room 512, Municipal Building.

CIRCULATION BRANCHES

MANHATTAN

33 East Broadway. (Chatham Square.)
 192 East Broadway. (Seward Park.)
 61 Rivington Street.
 388 E. Houston St. (Hamilton Fish Park.)
 66 Leroy Street. (Hudson Park.)
 135 Second Avenue. (Ottendorfer.)
 331 East 10th Street. (Tompkins Square.)
 251 West 13th Street. (Jackson Square.)
 228 East 23rd Street. (Epiphany.)
 209 West 23rd Street. (Muhlenberg.)
 303 East 36th Street. (St. Gabriel's Park.)
 457 West 40th Street.
 564 Lexington Avenue. (Cathedral.)
 742 Tenth Ave. Near 51st St. (Columbus.)
 121 East 58th Street.
 328 East 67th Street.
 190 Amsterdam Avenue. (Riverside.)
 1465 York Ave. Near 78th St. (Webster.)
 222 East 79th Street. (Yorkville.)
 444 Amsterdam Avenue. (St. Agnes.)
 112 East 96th Street.
 206 West 100th Street. (Bloomingdale.)
 174 East 110th Street. (Aguilar.)
 203 West 115th Street.
 116th Street and Amsterdam Avenue. Room 108a, Columbia University Library. (Columbia Sub-branch.)
 9 West 124th Street. (Harlem Library.)
 224 East 125th Street.
 518 West 125th Street. (George Bruce.)
 103 West 135th Street.

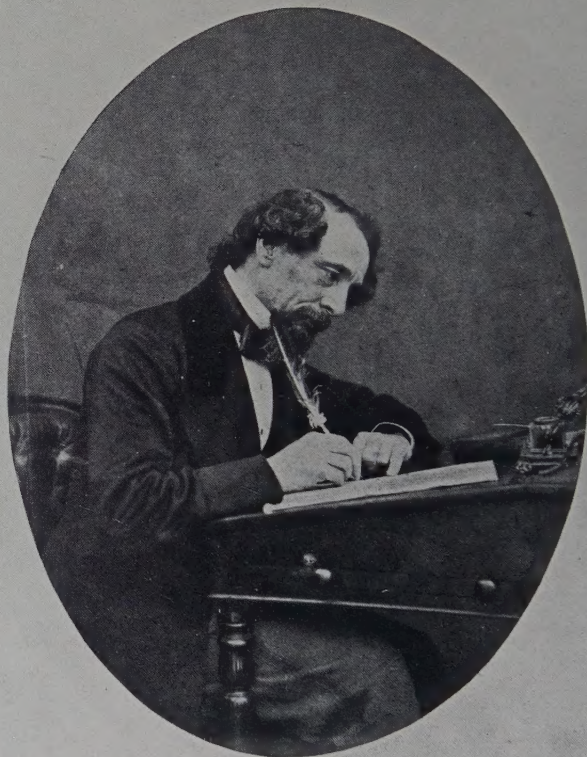
503 West 145th Street. (Hamilton Grange.)
 1000 St. Nicholas Ave. (Washington H'ghts.)
 535 West 179th Street. (Fort Washington.)
 215 Sherman Ave. (Inwood Sub-branch.)

THE BRONX

321 East 140th Street. (Mott Haven.)
 761 East 160th Street. (Woodstock.)
 910 Morris Avenue. (Melrose.)
 78 West 168th Street. (High Bridge.)
 610 East 169th Street. (Morrisania.)
 1205-7 Manor Avenue. (Clason's Point Sub-branch.)
 1866 Washington Avenue. (Tremont.)
 2019 University Avenue. (University Heights Sub-branch.)
 707 Rhinelander Ave. (Van Nest Sub-branch.)
 2556 Bainbridge Avenue. (Fordham.)
 3041 Kingsbridge Avenue. (Kingsbridge.)
 3917 White Plains Road. (Williamsbridge Sub-branch.)
 325 City Island Avenue. (City Island Sub-branch.)

RICHMOND

5 Central Avenue, Staten Island. (St. George.)
 75 Bennett Street. (Port Richmond.)
 85 State Street. (West New Brighton Sub-branch.)
 132 Canal Street. (Stapleton.)
 7430 Amboy Road. (Tottenville.)
 56 Gifford's Lane. (Gr't Kills Sub-branch.)
 155 Third Street. (New Dorp Sub-branch.) (Hughes Memorial Library.)



*This Portrait belonged to
Albert Smith and was bought at
the sale of his widow's effects
June 1870. Hans Coley*

Marion de la Roche

INSCRIBED PHOTOGRAPH PRESENTED TO ALBERT SMITH, THE DRAMATIST
OF DICKENS'S NOVEL, "THE BATTLE OF LIFE"